

GRE

OCTOBER 2022

PROJECT ID:
WITH: N/A

4085-62-71

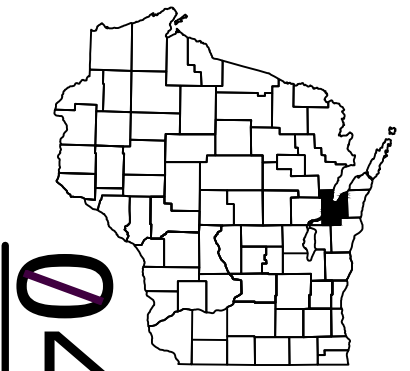
COUNTY:

BROWN

ORDER OF SHEETS

Section No.	1	Title
Section No.	2	Typical Sections and Details
Section No.	3	Estimate of Quantities
Section No.	3	Miscellaneous Quantities
Section No.	4	Right of Way Plat
Section No.	5	Plan and Profile
Section No.	6	Standard Detail Drawings
Section No.	7	Sign Plates
Section No.	8	Structure Plans
Section No.	9	Computer Earthwork Data
Section No.	9	Cross Sections

TOTAL SHEETS = 82



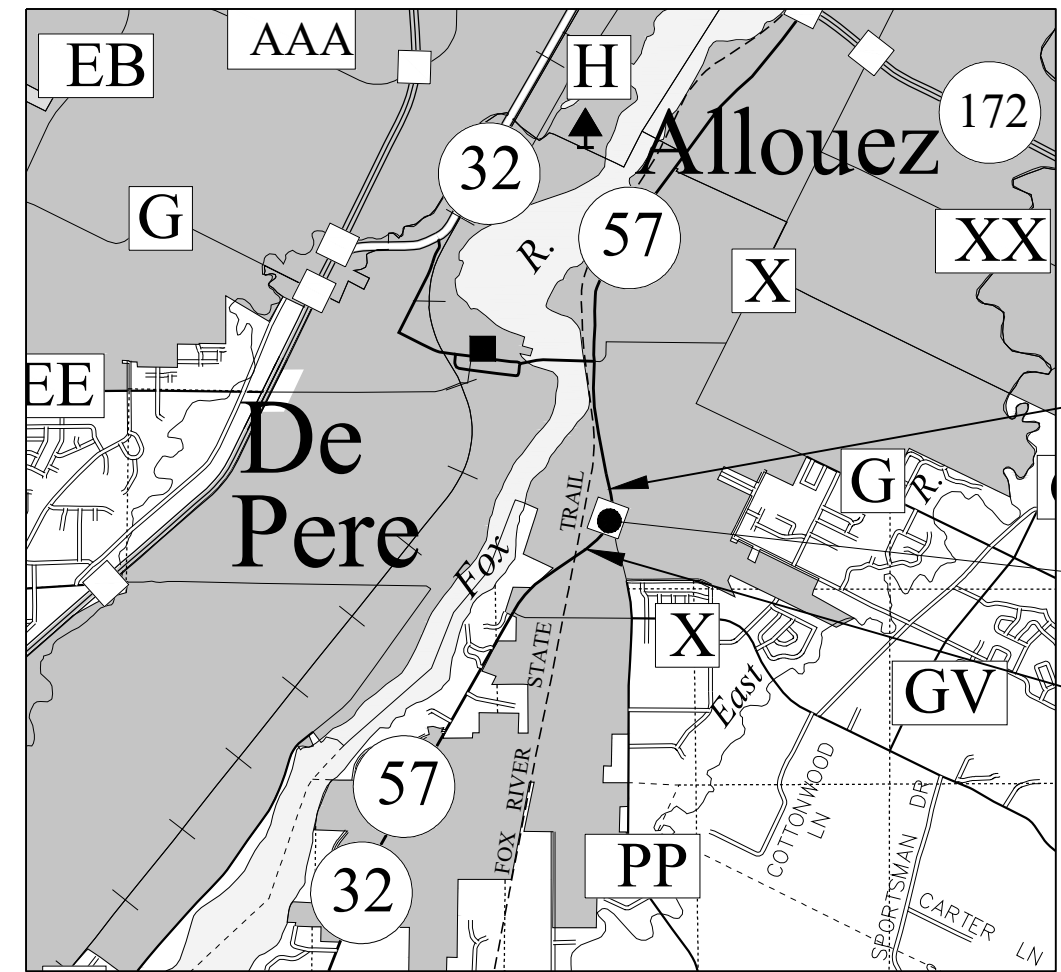
DESIGN DESIGNATION	STH 32	DESIGN DESIGNATION	CTH PP
A.A.D.T.	=	A.A.D.T.	=
A.A.D.T.	=	A.A.D.T.	=
D.H.V.	=	D.H.V.	=
D.D.	=	D.D.	=
T.	=	T.	=
DESIGN SPEED	=	DESIGN SPEED	=
ESALS	=	ESALS	=

CONVENTIONAL SYMBOLS

PLAN	PROFILE
CORPORATE LIMITS	GRADE LINE
PROPERTY LINE	ORIGINAL GROUND
LOT LINE	MARSH OR ROCK PROFILE (To be noted as such)
LIMITED HIGHWAY EASEMENT	SPECIAL DITCH
EXISTING RIGHT OF WAY	GRADE ELEVATION
PROPOSED OR NEW R/W LINE	CULVERT (Profile View)
SLOPE INTERCEPT	UTILITIES
REFERENCE LINE	ELECTRIC
EXISTING CULVERT	FIBER OPTIC
PROPOSED CULVERT (Box or Pipe)	GAS
COMBUSTIBLE FLUIDS	SANITARY SEWER
MARSH AREA	STORM SEWER
WOODED OR SHRUB AREA	TELEPHONE
	WATER
	UTILITY PEDESTAL
	POWER POLE
	TELEPHONE POLE

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION
 PLAN OF PROPOSED IMPROVEMENT
 CITY OF DE PERE, GREENLEAF ROAD
 STH 32 NORTHBOUND OVER CTH PP
 STH 32
 BROWN COUNTY

STATE PROJECT NUMBER
4085-62-71



LAYOUT
 SCALE 0 1 MI
 TOTAL NET LENGTH OF CENTERLINE = 0.25 MI

HORIZONTAL POSITIONS SHOWN ON THIS PLAN ARE WISCONSIN COORDINATE REFERENCE SYSTEM (WISCRS), BROWN COUNTY, NAD83 (2011), IN U.S. SURVEY FEET. POSITIONS SHOWN ARE GRID COORDINATES, GRID BEARINGS, AND GRID DISTANCES. GRID DISTANCES ARE THE SAME AS GROUND DISTANCES. ELEVATIONS ARE REFERENCED TO NAVD 88 (2012). GPS DERIVED ELEVATIONS ARE BASED ON GEOID 12A.

END PROJECT
 STA 652+37.00
 Y= 538,322.369
 X= 88,355.594

STRUCTURE B-5-465
 STH 32 NB OVER CTH PP

BEGIN PROJECT
 STA 638+97.00
 Y= 537,412.258
 X= 87,411.382

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
4085-62-71	WISC 2023005	1

STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
PREPARED BY	NE REGION
Surveyor	M. JEHRING
Designer	K. BERG
Project Manager	REGIONAL EXAMINER
Regional Examiner	D. SEGERSTROM
Regional Supervisor	

APPROVED FOR THE DEPARTMENT
 DATE: 8/9/2022
 [Signature]

GENERAL NOTES

THE LOCATIONS OF EXISTING UTILITY FACILITIES AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY FACILITIES WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

THE EXACT CONSTRUCTION LIMITS AND LOCATIONS OF ALL ENTRANCES SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.

ORDER OF SECTION 2 DETAIL SHEETS

- GENERAL NOTES
- TYPICAL SECTIONS
- CONSTRUCTION DETAILS
- PLAN DETAILS
- TRAFFIC CONTROL
- DETOUR PLAN
- ALIGNMENT PLAN

DNR LIASION

JIM DOPERALSKI JR.
NORTHEAST REGION
2984 SHAWANO AVE
GREEN BAY, WI 54313
(920) 412-0165
james.doperalski@wisconsin.gov

BROWN COUNTY HIGHWAY COMMISSIONER

PAUL FONTECCHIO
BROWN COUNTY HIGHWAY DEPT.
2198 GLENDALE AVE.
GREEN BAY, WI 54303
(920) 492-4925
bc_highway@co.brown.wi.us

NE REGION SURVEY COORDINATOR

CORMAC MCINNIS, RLS
944 VANDERPERREN WAY
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(920) 492-5638
cormac.mcinnis@dot.wi.gov

NE REGION DESIGN PROJECT MANAGER

KRISTEN BERG, PE
944 VANDERPERREN WAY
GREEN BAY, WI 54304
(920) 492-0139
kristen.berg@dot.wi.gov

UTILITIES CONTACTS

COMMUNICATIONS

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VICTORIA KASSAB
205 S. JEFFERSON RD
GREEN BAY, WI 54301
(920) 401-7512
vk352k@att.com

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BRUCE ROBBINS
1806 HAGEMANN DR
BATAVIA, IL 60510
(630) 454-8070
brobbins@tkns.net

WATER

CITY OF DE PERE
ERIC RAKERS
925 S SIXTH STREET
DE PERE, WI 54115
(920) 339-4061
erakers@deperewi.gov

CENTRAL BROWN COUNTY WATER AUTHORITY
ROB MICHAELSON
1303 S EIGHTH ST
MANITOWOC, WI 54220
(920) 686-4354
rmichaelson@mpu.org

ELECTRIC

WISCONSIN PUBLIC SERVICE CORPORATION
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2850 S ASHLAND AVE
Green Bay, WI 54304
(920) 617-5150
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GAS/PETROLEUM

WISCONSIN PUBLIC SERVICE CORPORATION
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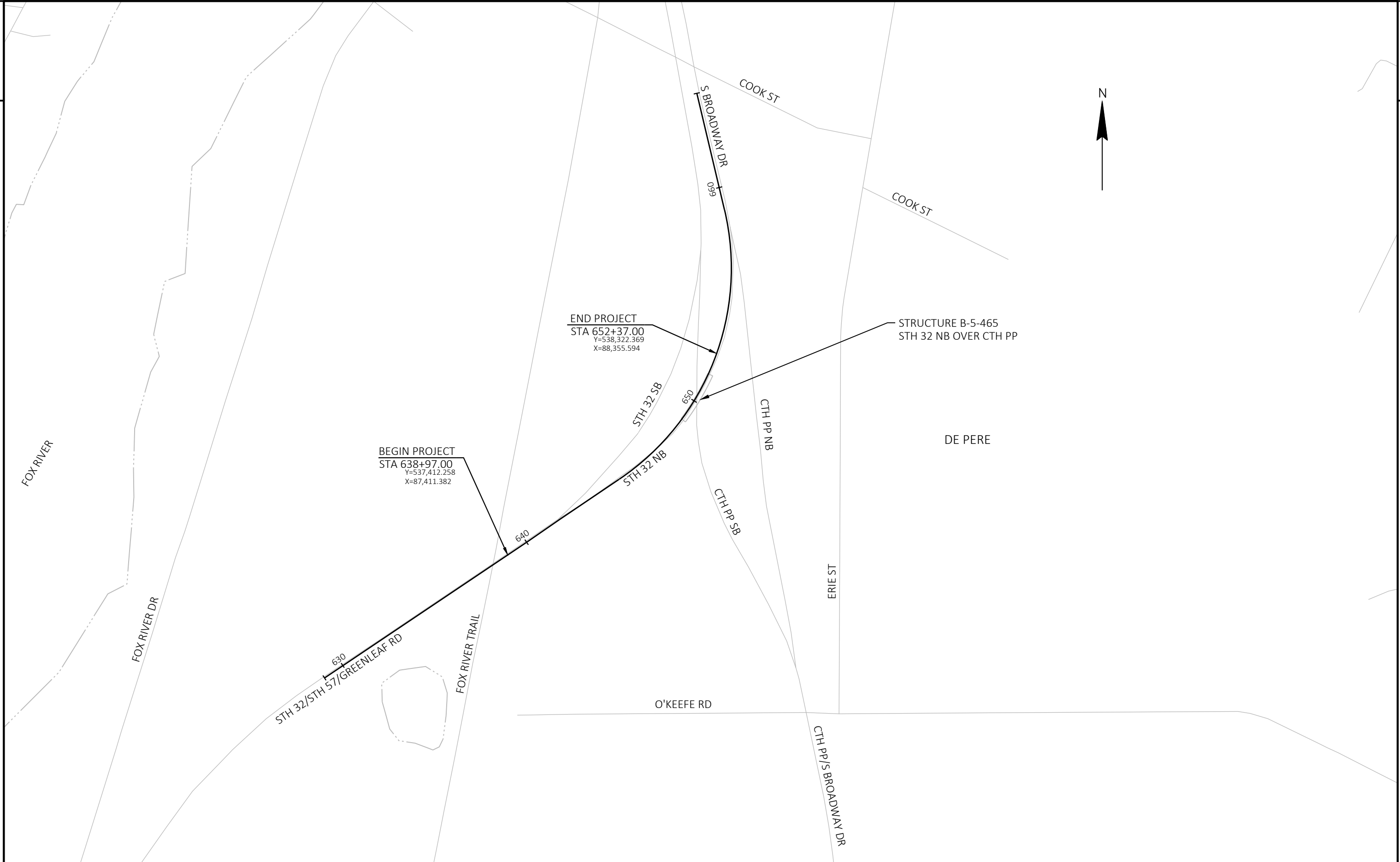
RUNOFF COEFFICIENT TABLE

	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .50	.19 .34	.28 .41	.38 .56
MEDIAN STRIP-TURF	.19 .24	.20 .26	.24 .30	.19 .25	.22 .28	.26 .33	.20 .26	.23 .30	.30 .37	.20 .27	.25 .32	.30 .40
SIDE SLOPE-TURF			.25 .32			.27 .34			.28 .36			.30 .38
PAVEMENT:												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

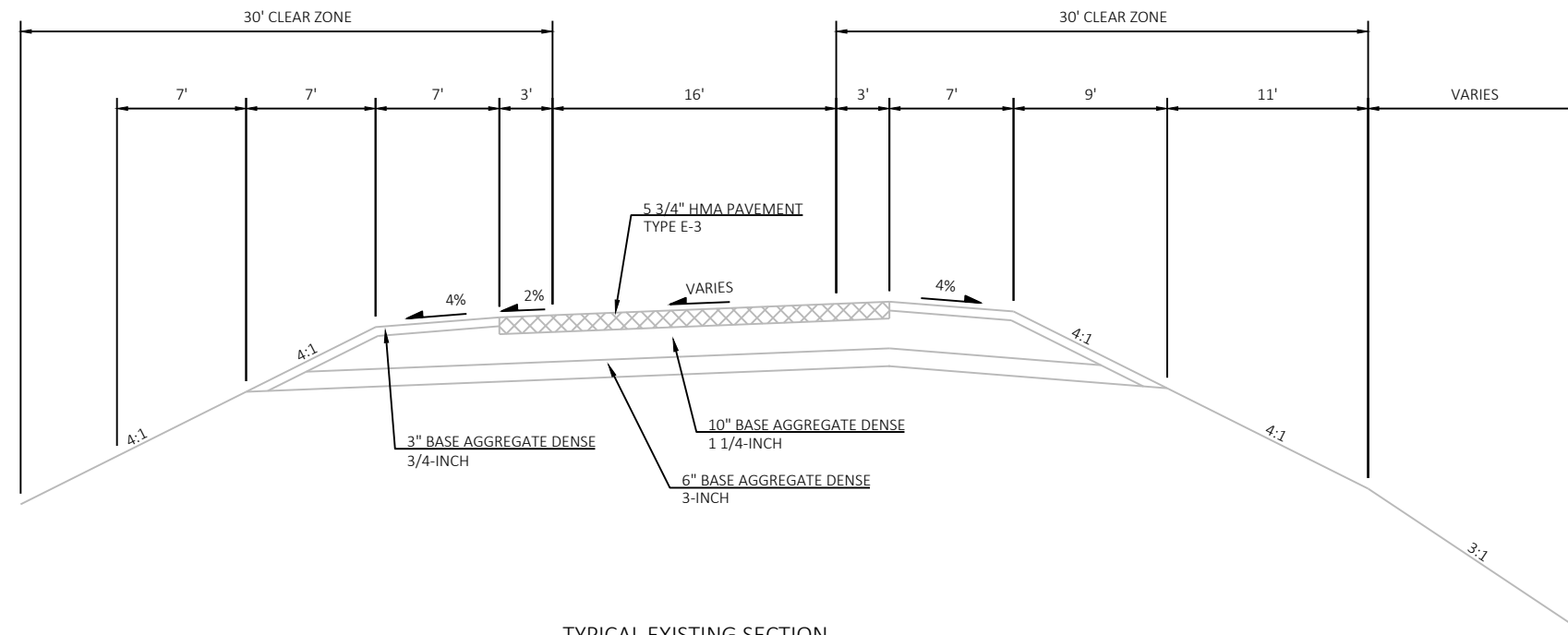
TOTAL PROJECT AREA = _____ ACRES

TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = _____ ACRES

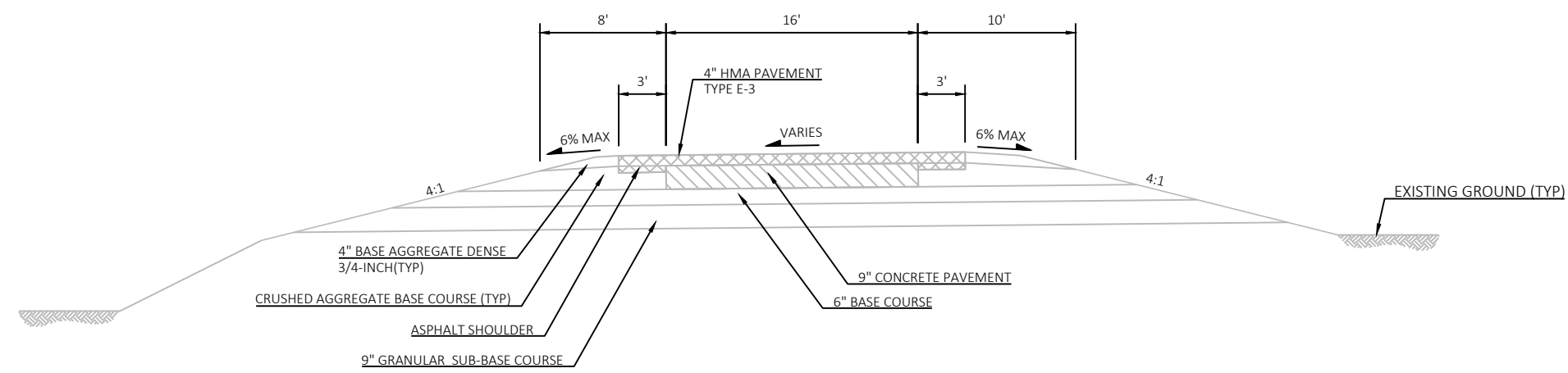




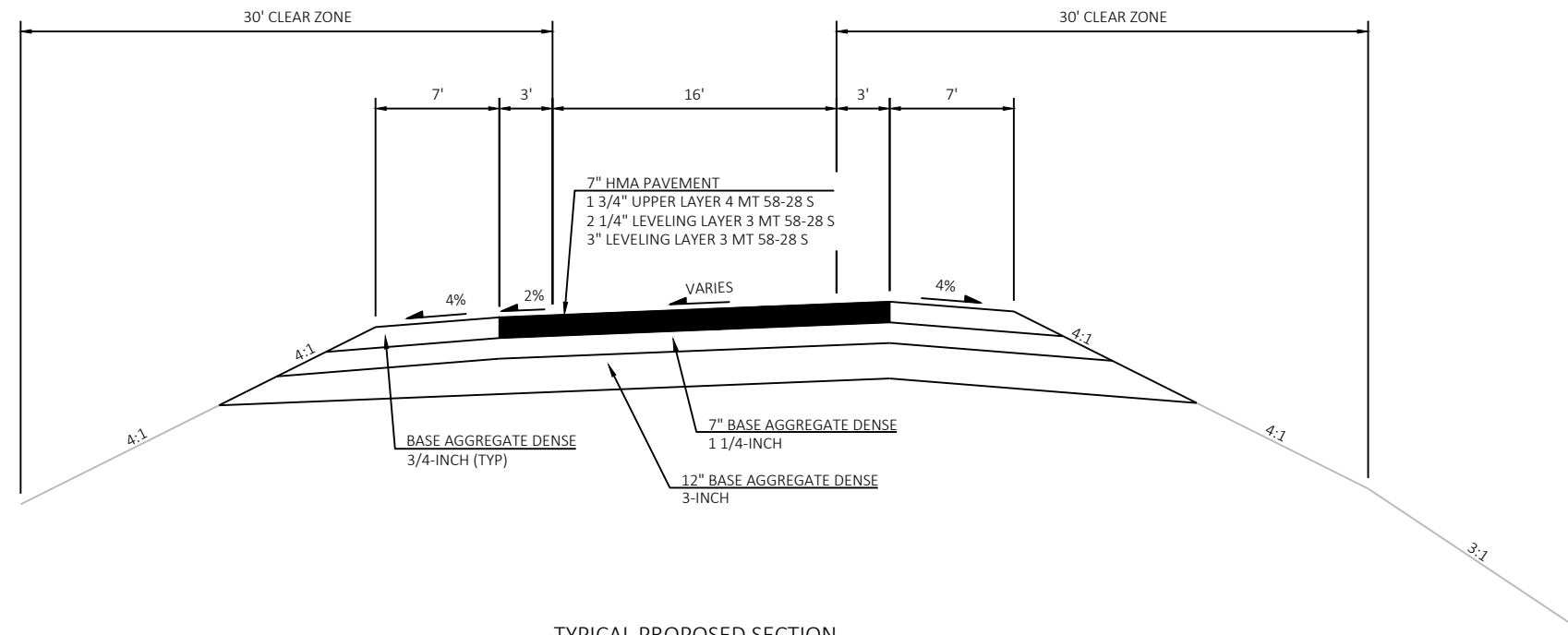
PROJECT NO: 4085-62-71	HWY: STH 32	COUNTY: BROWN	PROJECT OVERVIEW	SHEET E
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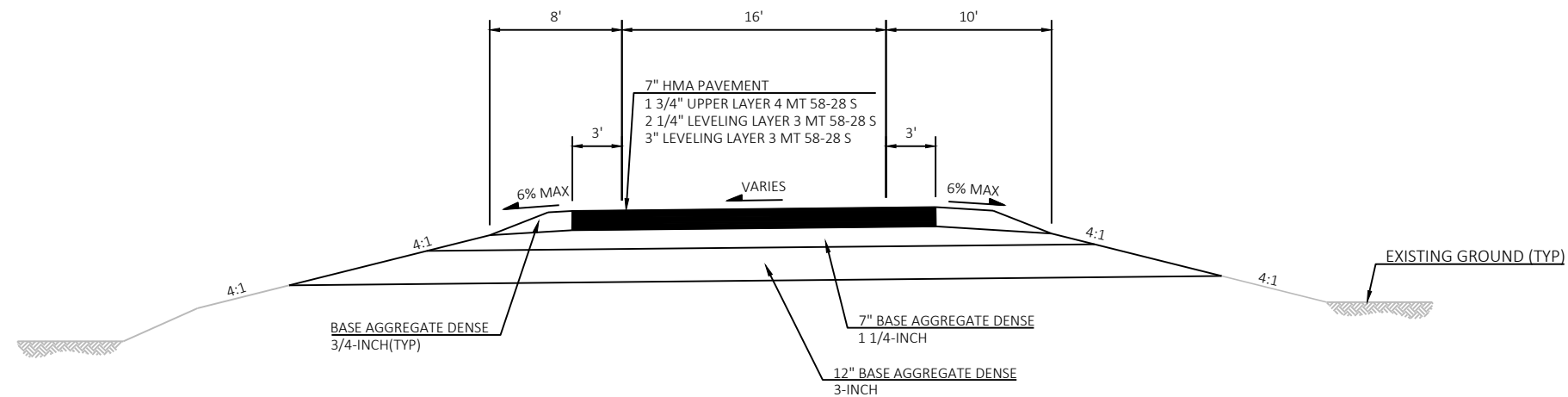
TYPICAL EXISTING SECTION
 STA 648+27 TO STA 649+00



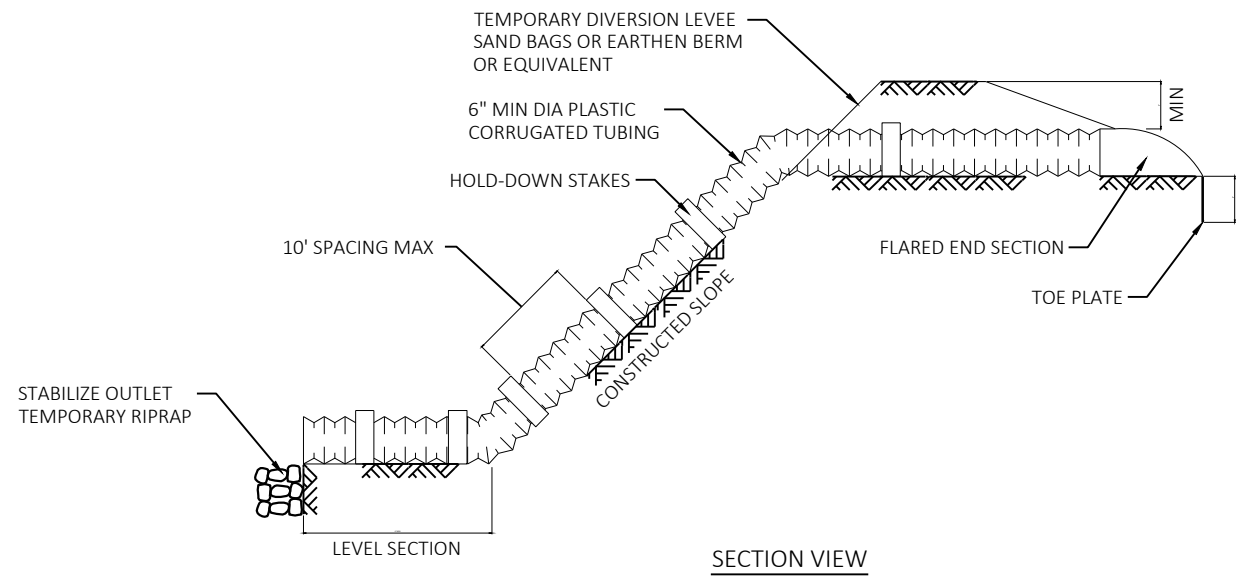
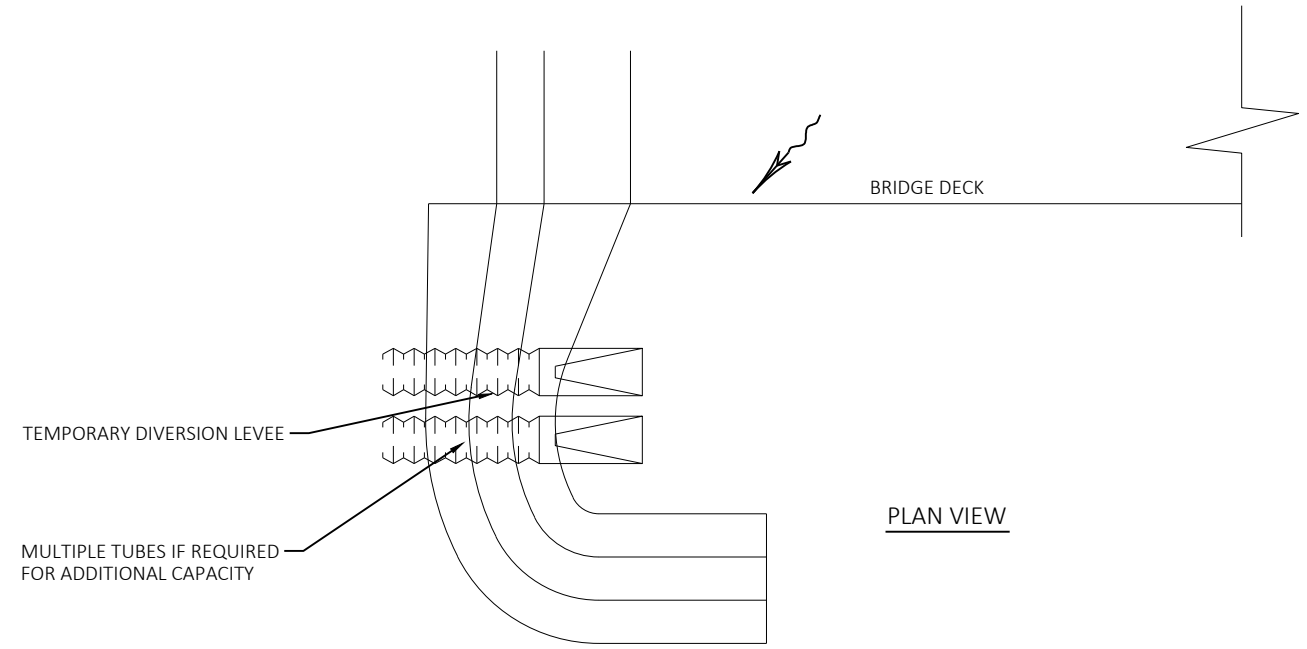
TYPICAL EXISTING SECTION
 STA 651+38 TO STA 652+05



TYPICAL PROPOSED SECTION
STA 648+27 TO STA 648+77



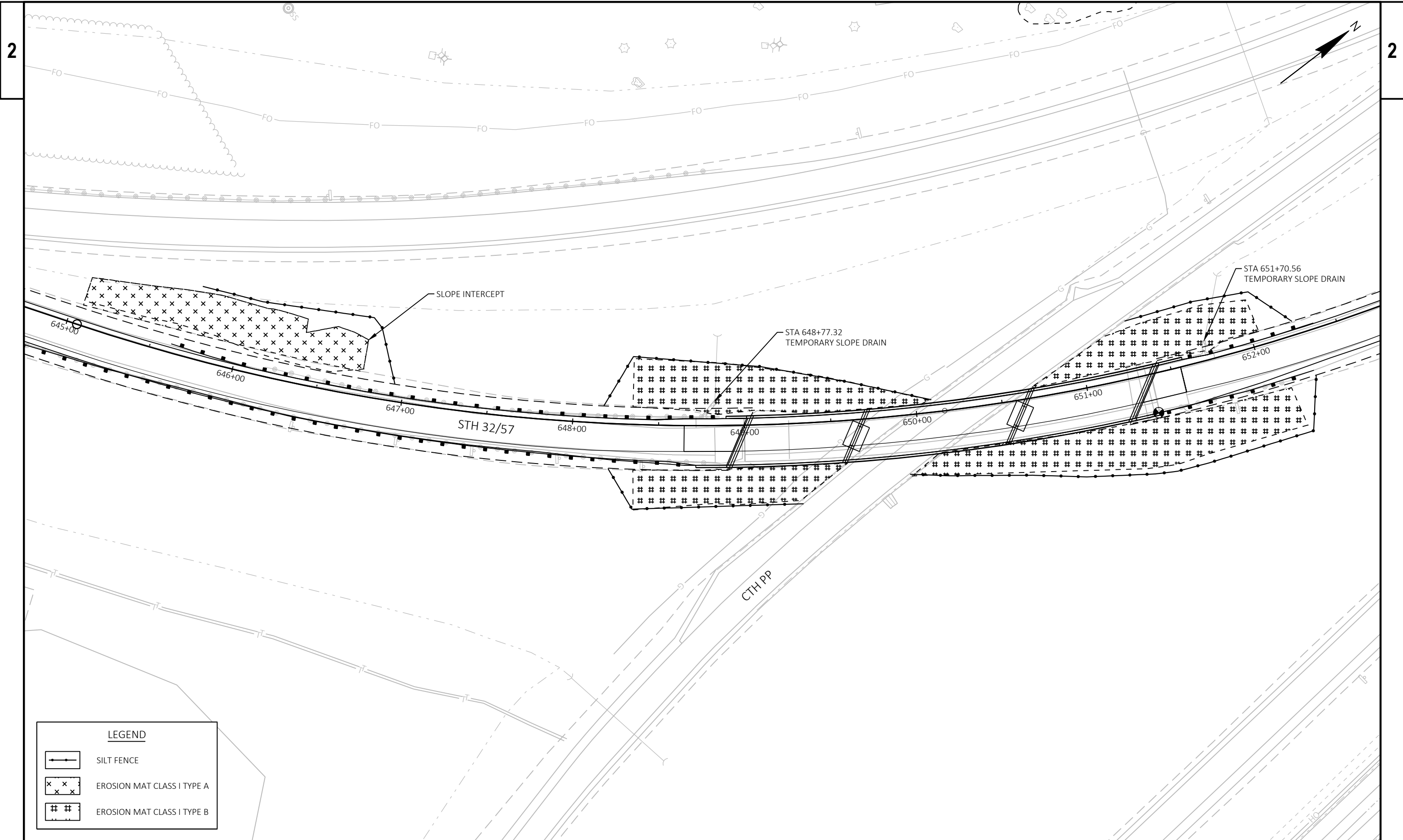
TYPICAL PROPOSED SECTION
STA 651+55 TO STA 652+05



TEMPORARY SLOPE DRAIN DETAIL

NOTES:

1. TEMPORARY LEVEE SHALL BE CONSTRUCTED FROM EARTHEN BERM, SAND BAGS, OR OTHER EQUIVALENT MATERIAL TO TEMPORARILY DIVERT WATER ALONG THE TOP OF SLOPE.
2. CONDUIT MATERIAL SHALL BE HEAVY DUTY FLEXIBLE MATERIAL SUCH AS NON-PERFORATED CORRUGATED PLASTIC TUBING OR SPECIALLY DESIGNED FLEXIBLE TUBING.
3. THE FLARED END SECTION AT THE INLET SHALL BE WATER-TIGHT WITH HAND COMPACTED MATERIAL AROUND THE PIPE AND END SECTION.
4. THE SOIL MATERIAL AROUND THE PIPE SHALL BE COMPACTED IN 6" LIFTS TO FILL ALL VOIDS IN THE TUBING CORRUGATIONS.
5. REMOVE TEMPORARY DRAINS AND TEMPORARY LEVEES AFTER SLOPE IS FULLY STABILIZED WITH VEGETATION AND EROSION CONTROL FEATURES.
6. TEMPORARY OUTLET STABILIZATION SUCH AS RIPRAP OR OTHER APPROVED METHOD IS INCIDENTAL TO THE TEMPORARY SLOPE DRAIN ITEM.



LEGEND	
	SILT FENCE
	EROSION MAT CLASS I TYPE A
	EROSION MAT CLASS I TYPE B

PROJECT NO: 4085-62-71

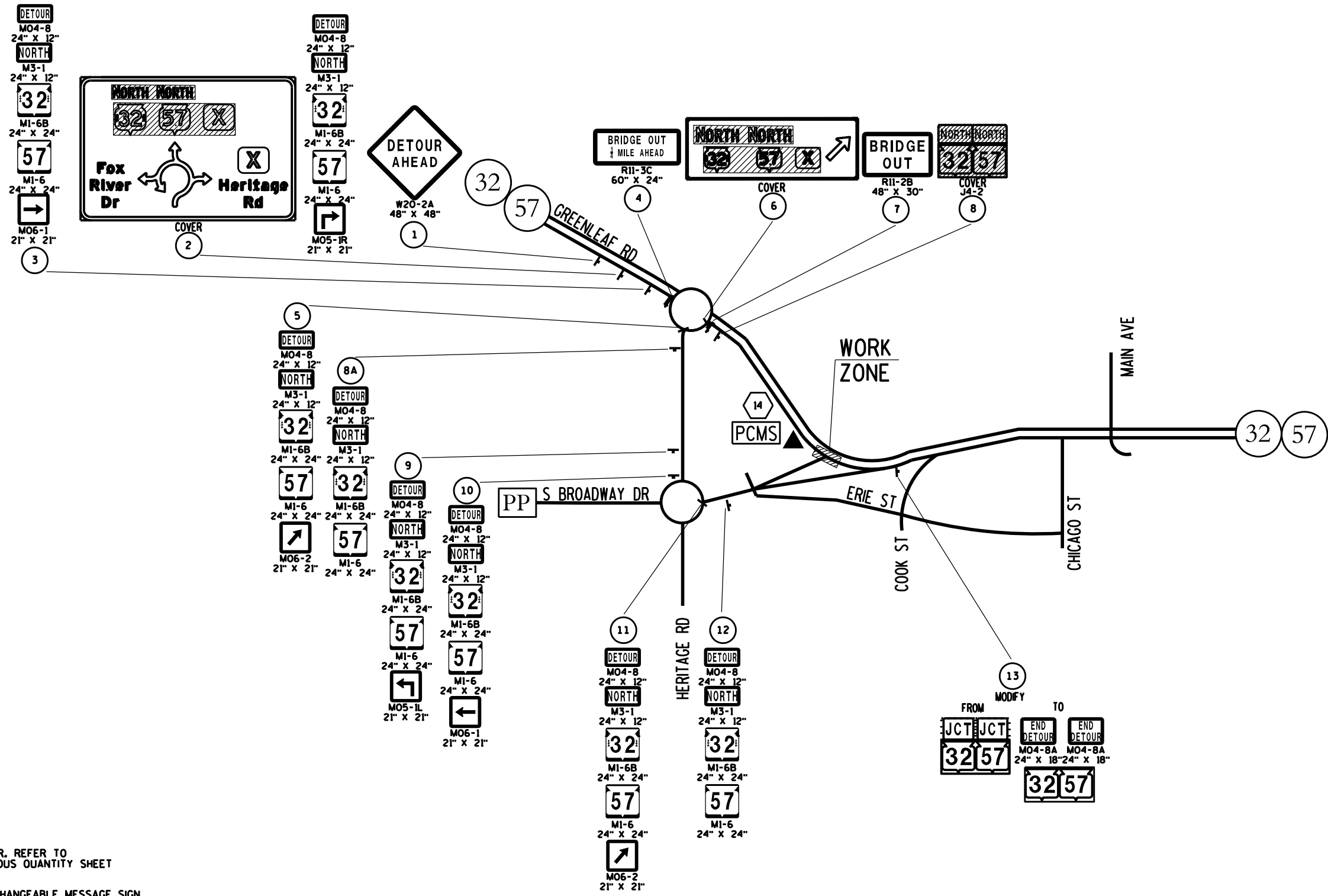
HWY: STH 32

COUNTY: BROWN

EROSION CONTROL

SHEET

E



LEGEND

- (X) SIGN NUMBER, REFER TO MISCELLANEOUS QUANTITY SHEET
- ▲ PCMS (X) PORTABLE CHANGEABLE MESSAGE SIGN
- SIGN MOUNTED ON TYPE III BARRICADE
- ┌ POST MOUNTED SIGN

PLAN SHEET PRODUCED BY WISDOT-NE REGION

Estimate Of Quantities

4085-62-71

Line	Item	Item Description	Unit	Total	Qty
0002	201.0120	Clearing	ID	5.000	5.000
0004	201.0220	Grubbing	ID	5.000	5.000
0006	203.0220	Removing Structure (structure) 01. B-05-052	EACH	1.000	1.000
0008	204.0100	Removing Concrete Pavement	SY	120.000	120.000
0010	204.0150	Removing Curb & Gutter	LF	101.000	101.000
0012	204.0165	Removing Guardrail	LF	1,322.000	1,322.000
0014	204.0190	Removing Surface Drains	EACH	3.000	3.000
0016	205.0100	Excavation Common	CY	59.000	59.000
0018	206.1000	Excavation for Structures Bridges (structure) 01. B-05-465	LS	1.000	1.000
0020	208.0100	Borrow	CY	17.000	17.000
0022	210.1500	Backfill Structure Type A	TON	430.000	430.000
0024	213.0100	Finishing Roadway (project) 01. 4085-62-71	EACH	1.000	1.000
0026	305.0110	Base Aggregate Dense 3/4-Inch	TON	70.000	70.000
0028	305.0120	Base Aggregate Dense 1 1/4-Inch	TON	209.000	209.000
0030	305.0130	Base Aggregate Dense 3-Inch	TON	404.000	404.000
0032	415.0410	Concrete Pavement Approach Slab	SY	70.000	70.000
0034	416.1010	Concrete Surface Drains	CY	13.000	13.000
0036	455.0605	Tack Coat	GAL	218.000	218.000
0038	460.2000	Incentive Density HMA Pavement	DOL	550.000	550.000
0040	460.6223	HMA Pavement 3 MT 58-28 S	TON	641.000	641.000
0042	460.6224	HMA Pavement 4 MT 58-28 S	TON	214.000	214.000
0044	502.0100	Concrete Masonry Bridges	CY	568.000	568.000
0046	502.3200	Protective Surface Treatment	SY	732.000	732.000
0048	502.3210	Pigmented Surface Sealer	SY	269.000	269.000
0050	503.0137	Prestressed Girder Type I 36W-Inch	LF	1,180.000	1,180.000
0052	505.0400	Bar Steel Reinforcement HS Structures	LB	12,080.000	12,080.000
0054	505.0600	Bar Steel Reinforcement HS Coated Structures	LB	96,080.000	96,080.000
0056	506.2605	Bearing Pads Elastomeric Non-Laminated	EACH	30.000	30.000
0058	506.4000	Steel Diaphragms (structure) 01. B-05-465	EACH	16.000	16.000
0060	516.0500	Rubberized Membrane Waterproofing	SY	20.000	20.000
0062	550.1100	Piling Steel HP 10-Inch X 42 Lb	LF	1,480.000	1,480.000
0064	550.1120	Piling Steel HP 12-Inch X 53 Lb	LF	2,240.000	2,240.000
0066	601.0588	Concrete Curb & Gutter 4-Inch Sloped 36-Inch Type TBT	LF	101.000	101.000
0068	604.0600	Slope Paving Select Crushed Material	SY	670.000	670.000
0070	606.0200	Riprap Medium	CY	15.000	15.000
0072	612.0406	Pipe Underdrain Wrapped 6-Inch	LF	140.000	140.000
0074	614.0150	Anchor Assemblies for Steel Plate Beam Guard	EACH	4.000	4.000
0076	614.2300	MGS Guardrail 3	LF	1,251.000	1,251.000
0078	614.2500	MGS Thrie Beam Transition	LF	177.000	177.000
0080	614.2610	MGS Guardrail Terminal EAT	EACH	1.000	1.000
0082	614.2620	MGS Guardrail Terminal Type 2	EACH	2.000	2.000
0084	619.1000	Mobilization	EACH	1.000	1.000
0086	624.0100	Water	MGAL	11.000	11.000
0088	625.0500	Salvaged Topsoil	SY	2,367.000	2,367.000
0090	628.1504	Silt Fence	LF	1,066.000	1,066.000
0092	628.1520	Silt Fence Maintenance	LF	1,066.000	1,066.000
0094	628.2002	Erosion Mat Class I Type A	SY	510.000	510.000
0096	628.2004	Erosion Mat Class I Type B	SY	1,838.000	1,838.000
0098	628.7570	Rock Bags	EACH	20.000	20.000

Estimate Of Quantities

4085-62-71

Line	Item	Item Description	Unit	Total	Qty
0100	629.0210	Fertilizer Type B	CWT	1.500	1.500
0102	630.0170	Seeding Mixture No. 70	LB	11.000	11.000
0104	630.0200	Seeding Temporary	LB	80.000	80.000
0106	630.0500	Seed Water	MGAL	54.000	54.000
0108	642.5001	Field Office Type B	EACH	1.000	1.000
0110	643.0300	Traffic Control Drums	DAY	3,840.000	3,840.000
0112	643.0420	Traffic Control Barricades Type III	DAY	2,520.000	2,520.000
0114	643.0705	Traffic Control Warning Lights Type A	DAY	3,240.000	3,240.000
0116	643.0715	Traffic Control Warning Lights Type C	DAY	3,840.000	3,840.000
0118	643.0900	Traffic Control Signs	DAY	8,880.000	8,880.000
0120	643.0910	Traffic Control Covering Signs Type I	EACH	1.000	1.000
0122	643.0920	Traffic Control Covering Signs Type II	EACH	2.000	2.000
0124	643.1050	Traffic Control Signs PCMS	DAY	14.000	14.000
0126	643.5000	Traffic Control	EACH	1.000	1.000
0128	645.0111	Geotextile Type DF Schedule A	SY	51.000	51.000
0130	645.0120	Geotextile Type HR	SY	9.000	9.000
0132	646.1020	Marking Line Epoxy 4-Inch	LF	559.000	559.000
0134	650.4500	Construction Staking Subgrade	LF	917.000	917.000
0136	650.5500	Construction Staking Curb Gutter and Curb & Gutter	LF	101.000	101.000
0138	650.6500	Construction Staking Structure Layout (structure) 01. B-05-465	LS	1.000	1.000
0140	650.9910	Construction Staking Supplemental Control (project) 4085-62-71	LS	1.000	1.000
0142	650.9920	Construction Staking Slope Stakes	LF	917.000	917.000
0144	690.0150	Sawing Asphalt	LF	28.000	28.000
0146	690.0250	Sawing Concrete	LF	16.000	16.000
0148	715.0502	Incentive Strength Concrete Structures	DOL	3,000.000	3,000.000
0150	715.0720	Incentive Compressive Strength Concrete Pavement	DOL	500.000	500.000
0152	ASP.1T0A	On-the-Job Training Apprentice at \$5.00/HR	HRS	1,200.000	1,200.000
0154	ASP.1T0G	On-the-Job Training Graduate at \$5.00/HR	HRS	600.000	600.000
0156	SPV.0060	Special 100. Temporary Slope Drain	EACH	2.000	2.000
0158	SPV.0090	Special 100. Removing Existing Steel Piling	LF	735.000	735.000

3

3

TRAFFIC CONTROL DETOUR SIGN SUMMARY

SIGN NO.	LOCATION	SIGN CODE	SIZE W X H	NUMBER IN SERVICE	APPROX. SERVICE PERIOD 120 DAYS	643.0900 SIGNS DAYS*	643.0420 BARRICADES TYPE III DAYS*	643.0705 WARNING LIGHTS TYPE A DAYS*	643.1050 SIGNS PORTABLE CHANGEABLE MESSAGE DAYS*	NO. OF CYCLES	643.0910 COVERING TYPE I SIGNS EACH	643.0920 COVERING TYPE II SIGNS EACH	REMARKS
1	STH 32/57, S. OF CTH X, PLACE 1/4 MILE S. OF CTH X INTERSECTION	W 20-2A	48"X48"	1	120	120							
2	STH 32/57, S. OF CTH X, PLACE/COVER ON EXISTING TYPE I SIGN									1	1		
	"	MO 4-8	24"X12"	1	120	120							
	"	M 3-1	24"X12"	1	120	120							
	"	M 1-6B	24"X24"	1	120	120							32
	"	M 1-6	24"X24"	1	120	120							57
	"	MO 5-1R	21"X21"	1	120	120							
3	STH 32/57, S. OF CTH X, PLACE 250' S. OF CTH X INTERSECTION	MO 4-8	24"X12"	1	120	120							
	"	M 3-1	24"X12"	1	120	120							
	"	M 1-6B	24"X24"	1	120	120							32
	"	M 1-6	24"X24"	1	120	120							57
	"	MO 6-1	21"X21"	1	120	120							RIGHT
4	STH 32/57, AT CTH X, PLACE ON RIGHT SHOULDER	R 11-3C	60"X24"	1	120	120	120	240					1/4 MILE AHEAD
5	STH 32/57, AT CTH X, PLACE IN SPLITTER ISLAND ON EAST LEG OF ROUNDABOUT	MO 4-8	24"X12"	1	120	120							
	"	M 3-1	24"X12"	1	120	120							
	"	M 1-6B	24"X24"	1	120	120							32
	"	M 1-6	24"X24"	1	120	120							57
	"	MO 6-2	21"X21"	1	120	120							TILT RIGHT
6	STH 32/57, AT CTH X, PLACE ON NORTH LEG OF ROUNDABOUT TO STH 32/57									1		1	COVER ENTIRE SIGN
7	STH 32/57, AT CTH X, PLACE ON NORTH LEG OF ROUNDABOUT TO STH 32/57	R 11-2B	48"X30"	1	120	120	120	240					
8	STH 32/57, N. OF CTH X, COVER EXISTING J4-2 SIGN AS SHOWN									1		1	COVER ENTIRE SIGN
8A	CTH X, E. OF STH 32/57, PLACE 250' E. OF STH 32/57 ROUNDABOUT	MO 4-8	24"X12"	1	120	120							
	"	M 3-1	24"X12"	1	120	120							
	"	M 1-6B	24"X24"	1	120	120							32
	"	M 1-6	24"X24"	1	120	120							57
9	CTH X, W. OF CTH PP, PLACE 750' W. OF CTH PP INTERSECTION	MO 4-8	24"X12"	1	120	120							
	"	M 3-1	24"X12"	1	120	120							
	"	M 1-6B	24"X24"	1	120	120							32
	"	M 1-6	24"X24"	1	120	120							57
	"	MO 5-1L	21"X21"	1	120	120							
10	CTH X, W. OF CTH PP, PLACE 100' W. OF CTH PP INTERSECTION	MO 4-8	24"X12"	1	120	120							
	"	M 3-1	24"X12"	1	120	120							
	"	M 1-6B	24"X24"	1	120	120							32
	"	M 1-6	24"X24"	1	120	120							57
	"	MO 6-1	21"X21"	1	120	120							LEFT
11	CTH X, AT CTH PP, PLACE IN SPLITTER ISLAND ON NORTH LEG OF ROUNDABOUT	MO 4-8	24"X12"	1	120	120							
	"	M 3-1	24"X12"	1	120	120							
	"	M 1-6B	24"X24"	1	120	120							32
	"	M 1-6	24"X24"	1	120	120							57
	"	MO 6-2	21"X21"	1	120	120							TILT RIGHT
12	CTH PP, N. OF CTH X, PLACE 150' N. OF CTH X ROUNDABOUT	MO 4-8	24"X12"	1	120	120							
	"	M 3-1	24"X12"	1	120	120							
	"	M 1-6B	24"X24"	1	120	120							32
	"	M 1-6	24"X24"	1	120	120							57
13	CTH PP, AT STH 32/57, MODIFY EXISTING J4-2 SIGN AS SHOWN	MO 4-8A	24"X18"	1	120	120							
	"	MO 4-8A	24"X18"	1	120	120							
14	STH 32/57, N. OF CTH X, PLACE ON RIGHT SHOULDER, FIELD DETERMINE LOCATION	PCMS		1					7				PLACE IN ADVANCE OF CLOSURE

*ADDITIONAL QUANTITIES LISTED ELSEWHERE

PROJECT TOTALS

44

5,160

240

480

7

1

2

PLAN SHEET PRODUCED

BY WisDOT - NE REGION

PROJECT NUMBER: 4085-62-71

HWY: STH 32

COUNTY: BROWN

MISCELLANEOUS QUANTITIES

SHEET

E

TRAFFIC CONTROL

LOCATION	APPROXIMATE SERVICE PERIOD DAY	643.0300		643.0420		643.0705		643.0715		643.0900		643.5000
		TRAFFIC CONTROL NO. IN SERVICE	DRUMS DAY	TRAFFIC CONTROL BARRICADES TYPE III NO. IN SERVICE	DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE A NO. IN SERVICE	DAY	TRAFFIC CONTROL WARNING LIGHTS TYPE C NO. IN SERVICE	DAY	TRAFFIC CONTROL SIGNS NO. IN SERVICE	DAY	TRAFFIC CONTROL EACH
STH 32	120	12	1,440	8	960	10	1,200	12	1,440	2	240	1
CTH PP	120	20	2,400	10	1,200	12	1,440	20	2,400	2	240	-
PROJECT TOTAL		3,840		2,160		2,640		3,840		480		1

CONSTRUCTION STAKING

STATION	TO	STATION	LOCATION	650.4500	650.5500	650.6500.01	650.9910.01	650.9920
				CONSTRUCTION STAKING SUBGRADE LF	CONSTRUCTION STAKING CURB & GUTTER LF	CONSTRUCTION STAKING STRUCTURE LAYOUT (STRUCTURE) (01. B-05-465) LS	CONSTRUCTION STAKING SUPPLEMENTAL CONTROL (PROJECT) (01. 4085-62-71) LS	CONSTRUCTION STAKING SLOPE STAKES LF
638+97	-	652+37	PROJECT	-	-	1	1	-
639+07	-	639+21	STH 32 RT	-	38	-	-	-
645+06	-	646+95	STH 32 LT	189	-	-	-	189
648+17	-	650+09	STH 32 LT	192	35	-	-	192
648+21	-	649+61	STH 32 RT	140	-	-	-	140
649+93	-	652+29	STH 32 RT	236	-	-	-	236
650+66	-	652+26	STH 32 LT	160	28	-	-	160
PROJECT TOTAL				917	101	1	1	917

CLEARING & GRUBBING

STATION	LOCATION	201.0120 CLEARING ID	201.0220 GRUBBING ID	REMARKS
646+58	STH 32, LEFT	4	4	TREES BEHIND BEAMGUARD
647+76	STH 32, LEFT	1	1	TREES BEHIND BEAMGUARD
PROJECT TOTAL		5	5	

SAWING

STATION	LOCATION	690.0150 SAWING ASPHALT LF	690.0250 SAWING CONCRETE LF
648+27	STH 32	22	-
652+05	STH 32	6	16
PROJECT TOTAL		28	16

DIVISION	FROM/TO STATION	LOCATION	205.0100 COMMON EXCAVATION (1)		SALVAGED/UNUSABLE PAVEMENT MATERIAL (4)	AVAILABLE MATERIAL (5)	UNEXPANDED FILL	EXPANDED FILL (13)	MASS ORDINATE +/- (14)	WASTE	208.0100 BORROW	COMMENT
			CUT (2)	EBS EXCAVATION (3)				FACTOR 1.15				
DIVISION 1	645+06 - 646+75	EAT GRADING	59	0	0	59	66	76	-17			
DIVISION 1 SUBTOTAL			59	0	0	59	66	76	-17			
GRAND TOTAL			59	0	0	59	66	76	-17	0	17	
TOTAL COMMON EXC			59									

REMOVALS

STATION	TO	STATION	LOCATION	204.0100 REMOVING CONCRETE PAVEMENT SY	204.0150 REMOVING CURB & GUTTER LF	204.0165 REMOVING GUARDRAIL LF	204.0190 REMOVING SURFACE DRAINS EACH
639+08	-	648+86	STH 32	-	63	1,251	2
651+47	-	652+17	STH 32	120	38	71	1
PROJECT TOTAL				120	101	1,322	3

GUARDRAIL

STATION	TO	STATION	LOCATION	614.2300 MGS GUARDRAIL 3 LF	614.2500 MGS THRIE BEAM TRANSITION LF	614.2610 MGS GUARDRAIL TERMINAL EAT EACH	614.2620 MGS GUARDRAIL TERMINAL TYPE 2 EACH
638+97	-	648+75	STH 32, RIGHT	937	48	-	-
645+62	-	648+92	STH 32, LEFT	237	39	1	-
651+35	-	652+29	STH 32, RIGHT	40	50	-	1
651+55	-	652+37	STH 32, LEFT	37	40	-	1
PROJECT TOTAL				1,251	177	1	2

MISC

LOCATION	619.1000 MOBILIZATION EACH	642.5001 FIELD OFFICE TYPE B EACH	ASP.1T0A ON-THE-JOB TRAINING APPRENTICE AT \$5.00/HR HRS	ASP.1T0G ON-THE-JOB TRAINING GRADUATE AT \$5.00/HR HRS
STH 32	1	1	1,200	600
PROJECT TOTAL	1	1	1,200	600

BASE AGGREGATE

STATION	TO	STATION	LOCATION	305.0110	305.0120	305.0130	624.0100	REMARKS
				BASE AGGREGATE DENSE 3/4-INCH TON	BASE AGGREGATE DENSE 1 1/4-INCH TON	BASE AGGREGATE DENSE 3-INCH TON	WATER MGAL	
648+77	-	648+99	STH 32	-	13	-	0.2	CONCRETE APPROACH SLAB
651+29	-	651+56	STH 32	-	16	-	0.2	CONCRETE APPROACH SLAB
648+27	-	648+77	STH 32	42	98	217	5.4	
651+56	-	652+05	STH 32	27	82	186	4.4	
PROJECT TOTAL				70	209	404	11	

PAVEMENT ITEMS

STATION	TO	STATION	LOCATION	213.0100.01	415.0410	455.0605	460.6223	460.6224
				FINISHING ROADWAY (PROJECT) (01. 4085-62-71) EACH	CONCRETE PAVEMENT APPROACH SLAB SY	TACK COAT GAL	HMA PAVEMENT 3 MT 58-28 S TON	HMA PAVEMENT 4 MT 58-28 S TON
648+77	-	648+99	STH 32	-	33	-	-	-
651+29	-	651+56	STH 32	-	37	-	-	-
648+27	-	648+77	STH 32	-	-	110	323	108
651+56	-	652+05	STH 32	-	-	108	317	106
			STH 32	1	-	-	-	-
PROJECT TOTAL				1	70	218	641	214

CURB & GUTTER

STATION	TO	STATION	LOCATION	601.0588 CONCRETE CURB & GUTTER 4-INCH SLOPED 36-INCH TYPE TBT LF
639+07	-	639+21	STH 32 RT	38
648+72	-	648+86	STH 32 LT	35
651+62	-	651+76	STH 32 LT	28
PROJECT TOTAL				101

PAVEMENT MARKINGS

STATION	TO	STATION	LOCATION	646.1020 MARKING LINE EPOXY 4-INCH LF	REMARKS
648+77	-	648+99	STH 32	37	CONCRETE APPROACH SLAB
648+99	-	651+29	STH 32	480	BRIDGE
651+29	-	651+56	STH 32	42	CONCRETE APPROACH SLAB
			PROJECT TOTAL	559	

EROSION CONTROL

STATION	TO	STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SILT FENCE MAINTENANCE LF	628.2002 EROSION MAT CLASS I TYPE A SY	628.2004 EROSION MAT CLASS I TYPE B SY	628.7570 ROCK BAGS EACH	SPV.0060.01 SPECIAL (01. TEMPORARY SLOPE DRAIN) EACH
645+06	-	646+95	STH 32 LT	142	142	407	-	-	-
648+17	-	650+09	STH 32 LT	208	208	-	401	-	1
648+21	-	649+61	STH 32 RT	127	127	-	257	-	-
649+93	-	652+29	STH 32 RT	270	270	-	537	-	-
650+66	-	652+26	STH 32 LT	104	104	-	275	-	1
			UNDISTRIBUTED	213	213	102	368	20	-
PROJECT TOTAL				1,066	1,066	510	1,838	20	2

CONCRETE SURFACE DRAINS

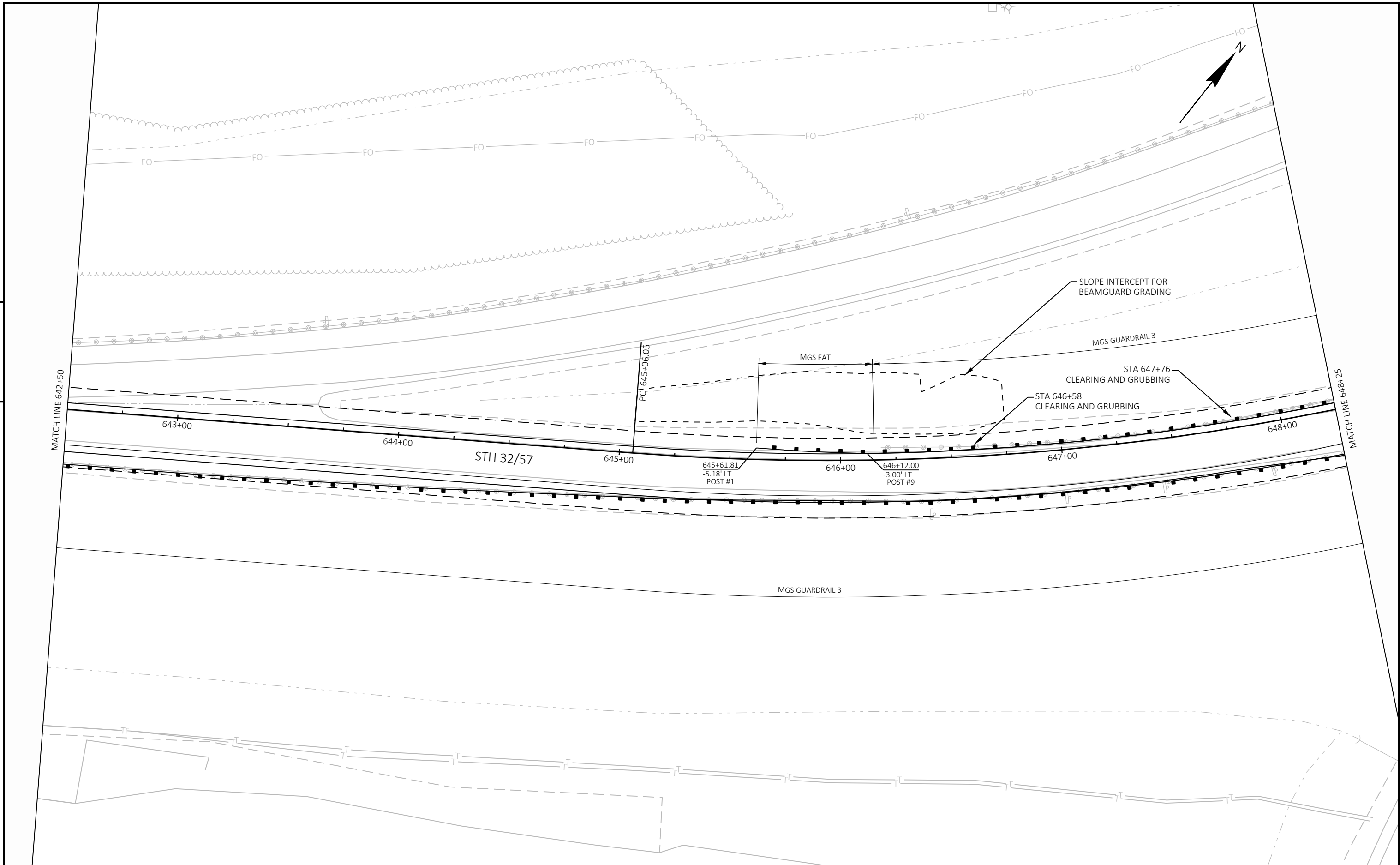
STATION	LOCATION	416.1010 CONCRETE SURFACE DRAINS CY	606.0200 RIPRAP MEDIUM CY	645.0120 GEOTEXTILE TYPE HR SY
639+50	STH 32 RT	5	5	3
648+53	STH 32 LT	4	5	3
651+94	STH 32 LT	4	5	3
PROJECT TOTAL		13	15	9

RESTORATION

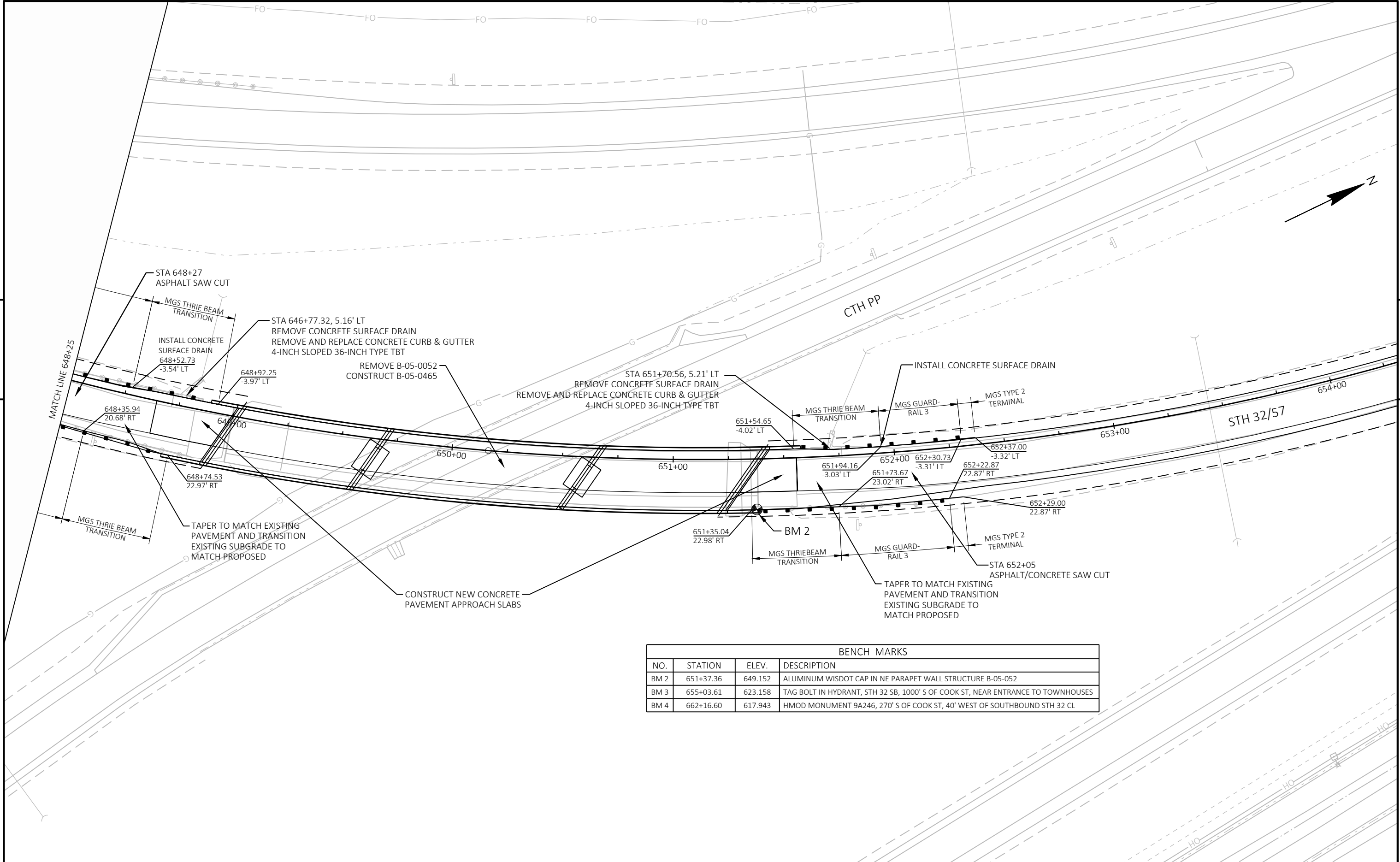
STATION	TO	STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	629.0210 FERTILIZER TYPE B CWT	630.0170 SEEDING MIXTURE NO. 70 LB	630.0200 SEEDING TEMPORARY LB	630.0500 SEED WATER MGAL
645+06	-	646+75	STH 32 LT	423	0.27	2	14	9
648+17	-	650+09	STH 32 LT	401	0.25	2	14	9
649+93	-	652+29	STH 32 RT	537	0.34	2	18	12
648+21	-	649+61	STH 32 RT	257	0.16	1	9	6
650+66	-	652+26	STH 32 LT	275	0.17	1	9	6
			UNDISTRIBUTED	473	0.30	2	16	11
PROJECT TOTAL				2,367	1.50	11	80	54

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PROJECT NO: 4085-62-71	HWY: STH 32	COUNTY: BROWN	PLAN SHEETS	SHEET E
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BENCH MARKS			
NO.	STATION	ELEV.	DESCRIPTION
BM 2	651+37.36	649.152	ALUMINUM WISDOT CAP IN NE PARAPET WALL STRUCTURE B-05-052
BM 3	655+03.61	623.158	TAG BOLT IN HYDRANT, STH 32 SB, 1000' S OF COOK ST, NEAR ENTRANCE TO TOWNHOUSES
BM 4	662+16.60	617.943	HMOD MONUMENT 9A246, 270' S OF COOK ST, 40' WEST OF SOUTHBOUND STH 32 CL

Standard Detail Drawing List

08D02-07A	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-07B	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08D02-07C	CONCRETE SURFACE DRAINS FLUME TYPE AT STRUCTURES
08E09-06	SILT FENCE
12A03-10	NAME PLATE (STRUCTURES)
13B02-09A	CONCRETE PAVEMENT APPROACH SLAB
14B42-07A	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07B	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07C	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B42-07D	MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL
14B45-05A	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05B	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05C	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05D	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05E	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05F	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05G	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05H	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05I	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05J	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05K	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B45-05L	MIDWEST GUARDRAIL SYSTEM THREE BEAM TRANSITION (MGS)
14B47-03A	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03B	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03C	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03D	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03E	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03F	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
14B47-03G	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL
15C02-08A	BARRICADES AND SIGNS FOR MAINLINE CLOSURES
15C02-08B	BARRICADES AND SIGNS FOR VARIOUS CLOSURES
15C02-08C	DETOUR SIGNING FOR MAINLINE CLOSURES
15C08-21A	LONGITUDINAL MARKING (MAINLINE)

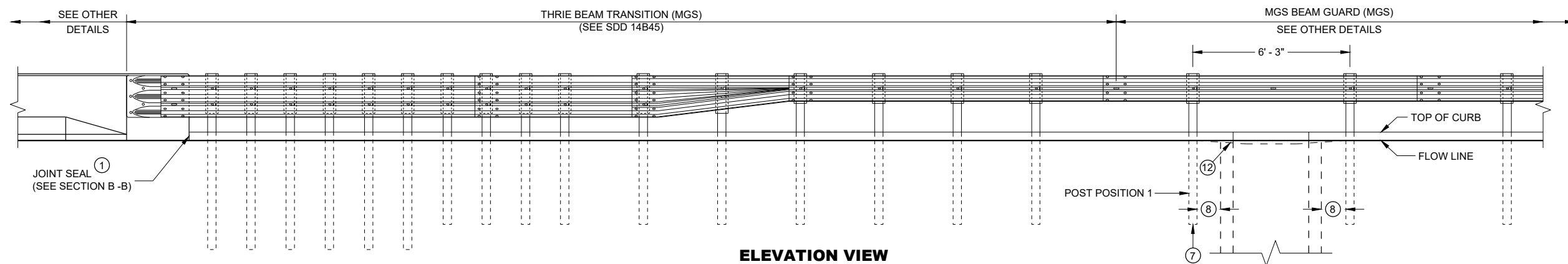
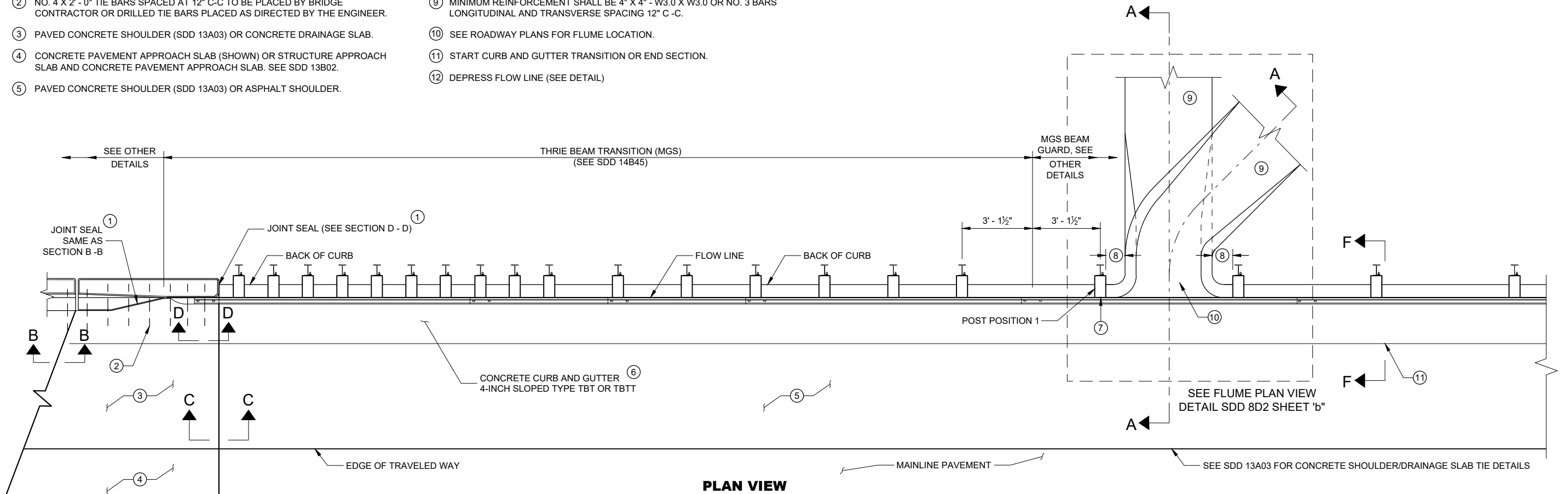
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.

- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)



**CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES**

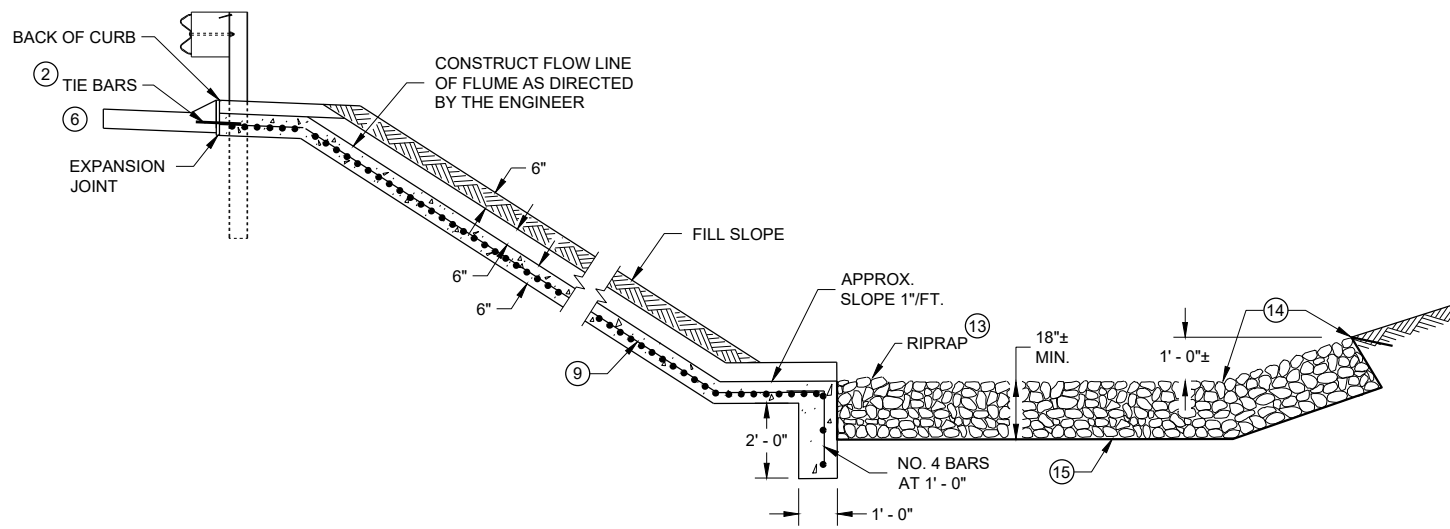
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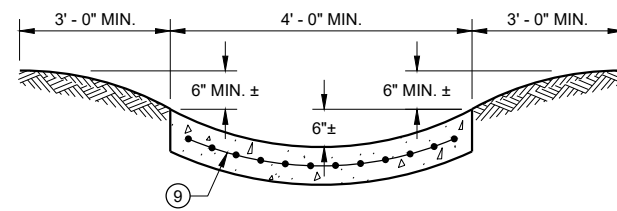
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SDD 08D02 - 07a

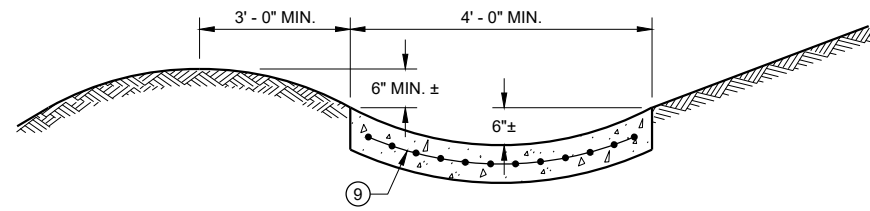
SDD 08D02 - 07a



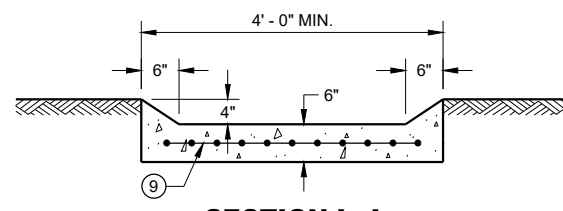
SECTION A - A



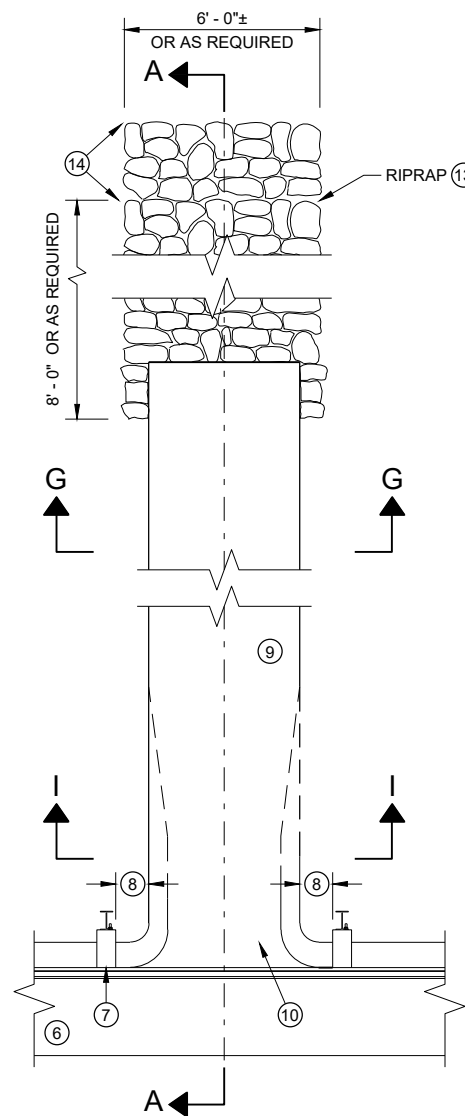
SECTION G - G



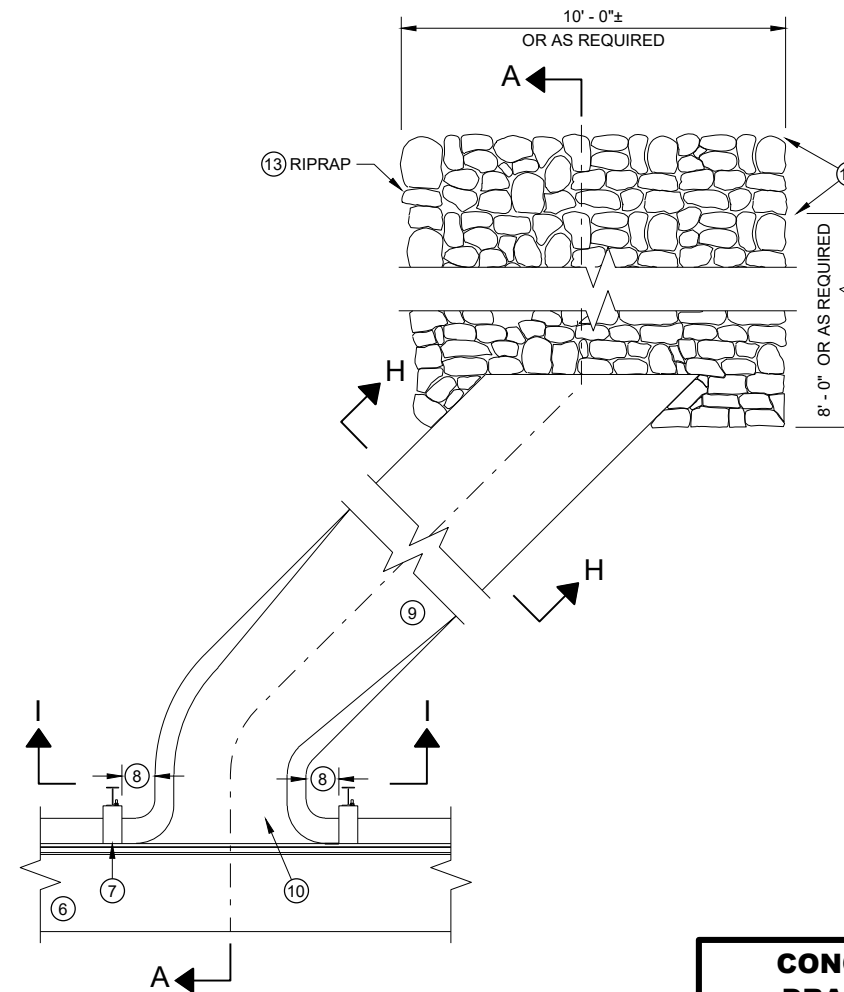
SECTION H - H



SECTION I - I



PLAN VIEW PERPENDICULAR FLUME



PLAN VIEW SKEWED FLUME

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

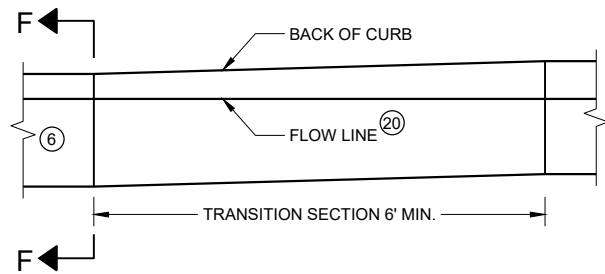
ALL STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2'-0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2'-0" TIE BARS SPACED AT 3'-0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.

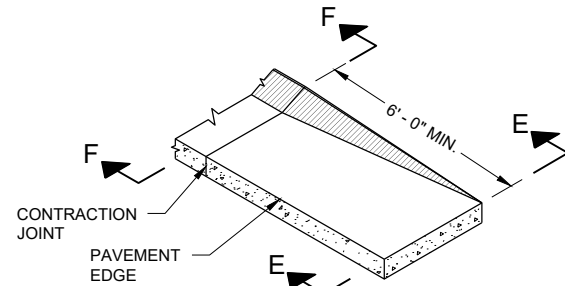
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C -C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH AS REQUIRED.
- ⑮ GEOTEXTILE FABRIC TYPE HR.

**CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES**

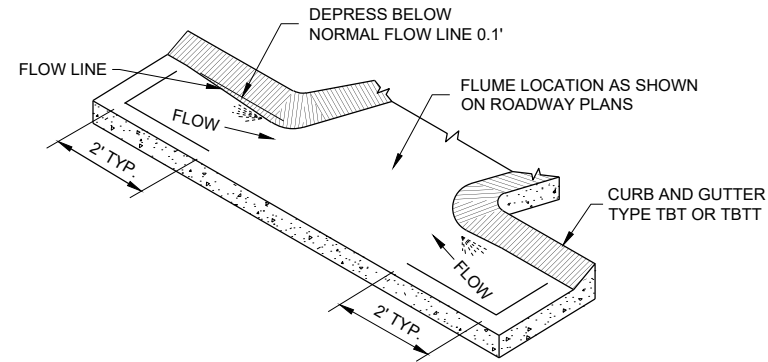
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**CURB AND GUTTER TRANSITION SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBTT**



**CURB AND GUTTER END SECTION
CONCRETE CURB AND GUTTER 4-INCH SLOPED
36 INCH TYPE TBT OR TBTT**



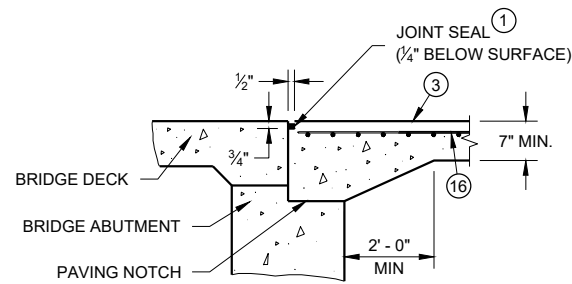
**CURB AND GUTTER FLOW LINE DEPRESSION
AT FLUMES CONCRETE CURB AND GUTTER
4-INCH SLOPED 36 INCH TYPE TBT OR TBTT**

GENERAL NOTES

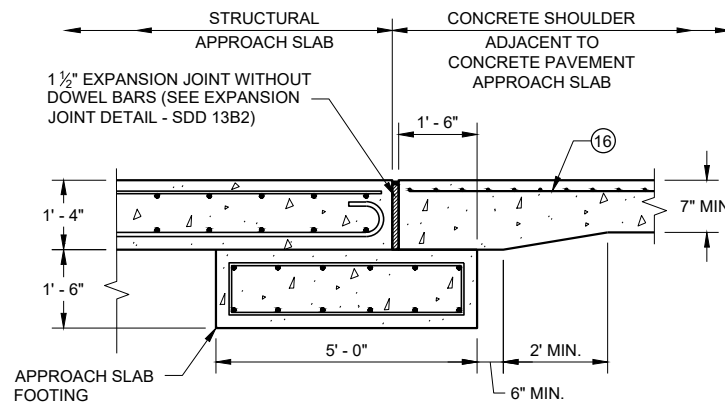
DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

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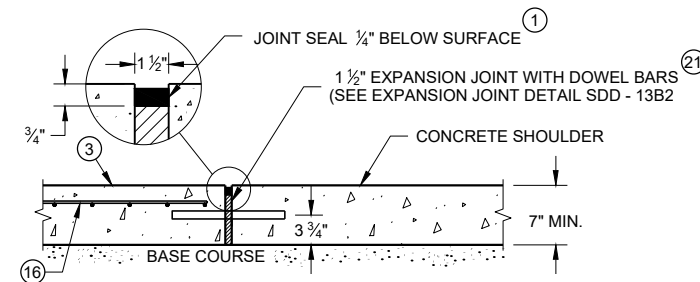
- ① USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ② NO. 4 X 2' - 0" TIE BARS SPACED AT 12" C-C TO BE PLACED BY BRIDGE CONTRACTOR OR DRILLED TIE BARS PLACED AS DIRECTED BY THE ENGINEER.
- ③ PAVED CONCRETE SHOULDER (SDD 13A03) OR CONCRETE DRAINAGE SLAB.
- ④ CONCRETE PAVEMENT APPROACH SLAB (SHOWN) OR STRUCTURE APPROACH SLAB AND CONCRETE PAVEMENT APPROACH SLAB. SEE SDD 13B02 AND STRUCTURE PLANS.
- ⑤ PAVED CONCRETE SHOULDER (SDD 13A03) OR ASPHALT SHOULDER.
- ⑥ CONCRETE CURB AND GUTTER 4-INCH SLOPED 36-INCH TYPE TBT OR TBTT. USE TYPE TBTT CURB WITH NO. 4 X 2' - 0" TIE BARS SPACED AT 3' - 0" C-C ONLY WHEN ADJACENT TO CONCRETE PAVEMENTS.
- ⑦ PLACE FLUME BEFORE MSG THRIE BEAM TRANSITION POST 1 (SEE SDD 14B45)
- ⑧ CENTER FLUME BETWEEN POSTS. 6-INCH MINIMUM SEPARATION FROM OUTSIDE EDGE OF FLUME TO POSTS.
- ⑨ MINIMUM REINFORCEMENT SHALL BE 4" X 4" - W3.0 X W3.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑩ SEE ROADWAY PLANS FOR FLUME LOCATION.
- ⑪ START CURB AND GUTTER TRANSITION OR END SECTION.
- ⑫ DEPRESS FLOW LINE (SEE DETAIL)
- ⑬ MEDIUM RIPRAP UNLESS OTHERWISE SPECIFIED.
- ⑭ LIMITS OF ADDITIONAL RIPRAP WHEN SPECIAL DITCH IS REQUIRED.
- ⑮ GEOTEXTILE FABRIC TYPE HR.
- ⑯ MINIMUM REINFORCEMENT SHALL BE 6" X 6" - W4.0 X W4.0 OR NO. 3 BARS LONGITUDINAL AND TRANSVERSE SPACING 12" C-C.
- ⑰ MSG THRIE BEAM TRANSITION POST 1. SEE SDD 14B45 FOR ADDITIONAL CONSTRUCTION DETAILS AND ACCEPTABLE MATERIALS.
- ⑱ MAINTAIN WIDTH, THICKNESS AND CROSS SLOPE OF ADJACENT TYPE TBT OR TBTT CURB. SEE NOTE 6 FOR TIE BAR SPACING.
- ⑲ ALIGN FACE OF POST BLOCK WITH FLOW LINE.
- ⑳ MAINTAIN FLOW LINE AT EDGE OF PAVEMENT/FACE OF BEAM GUARD AS APPLICABLE.
- ㉑ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING HMA PAVEMENTS.



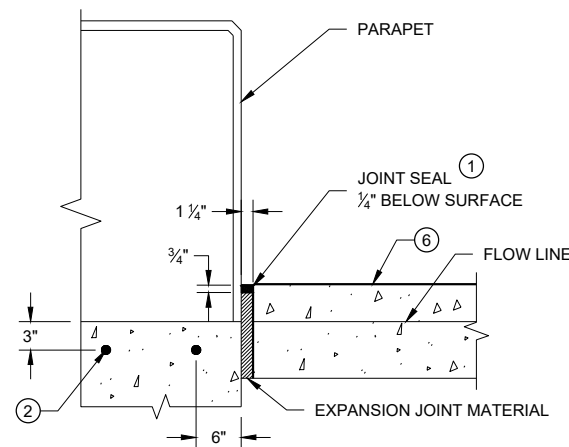
SECTION B-B



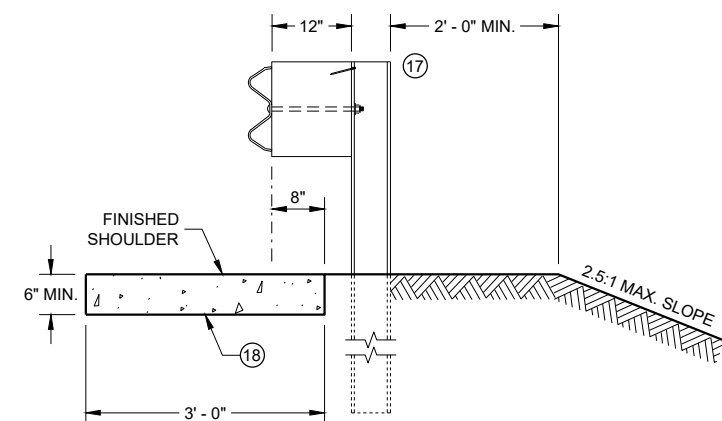
**SECTION C - C
JOINT DETAIL FOR BRIDGE WITH STRUCTURAL
APPROACH SLAB AND CONCRETE APPROACH SLAB**



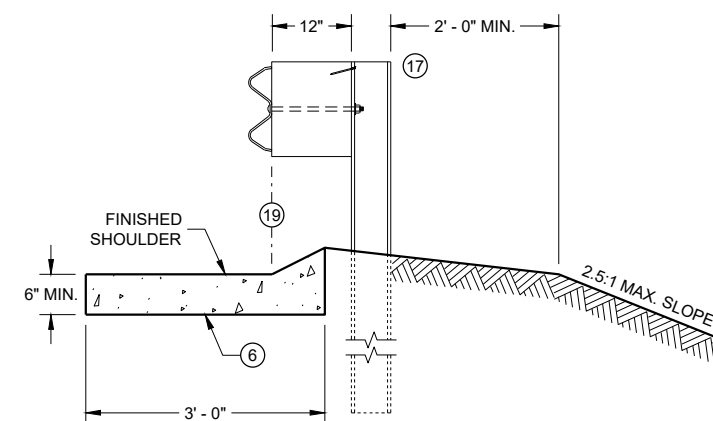
**SECTION C - C
JOINT DETAIL FOR BRIDGE APPROACH
WITH CONCRETE SHOULDERS**



SECTION D - D



SECTION E - E



SECTION F - F

6

6

SDD08D02 - 07C

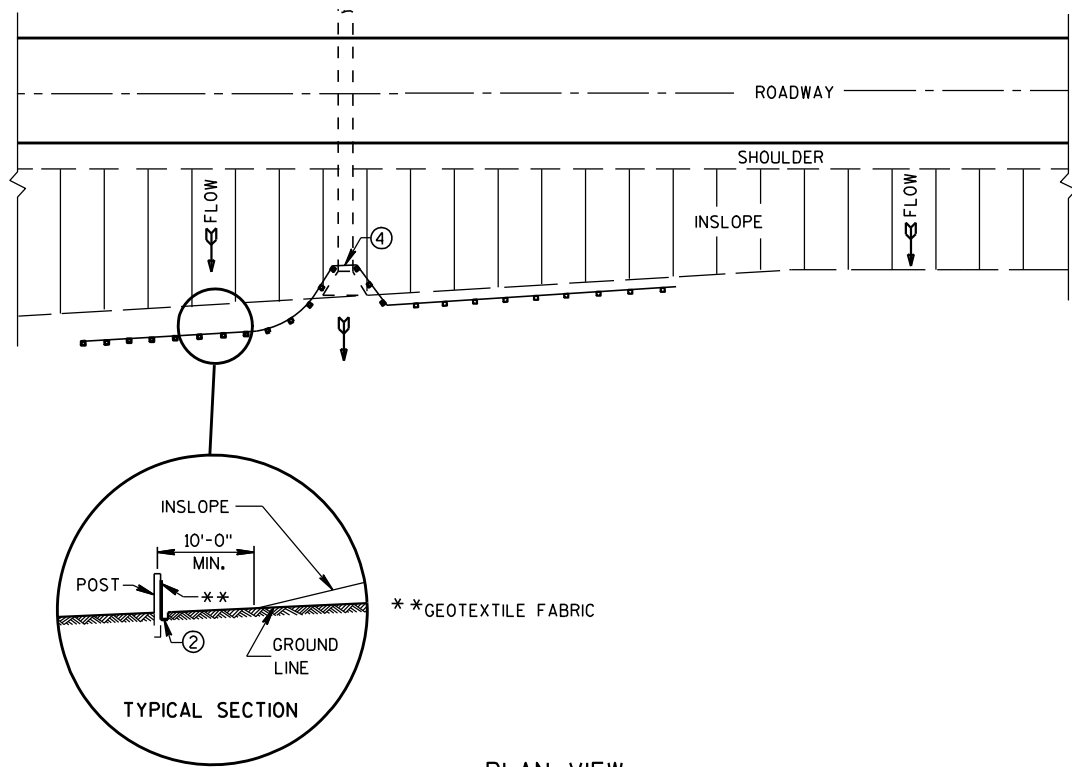
SDD08D02 - 07C

**CONCRETE SURFACE
DRAINS FLUME TYPE
AT STRUCTURES**

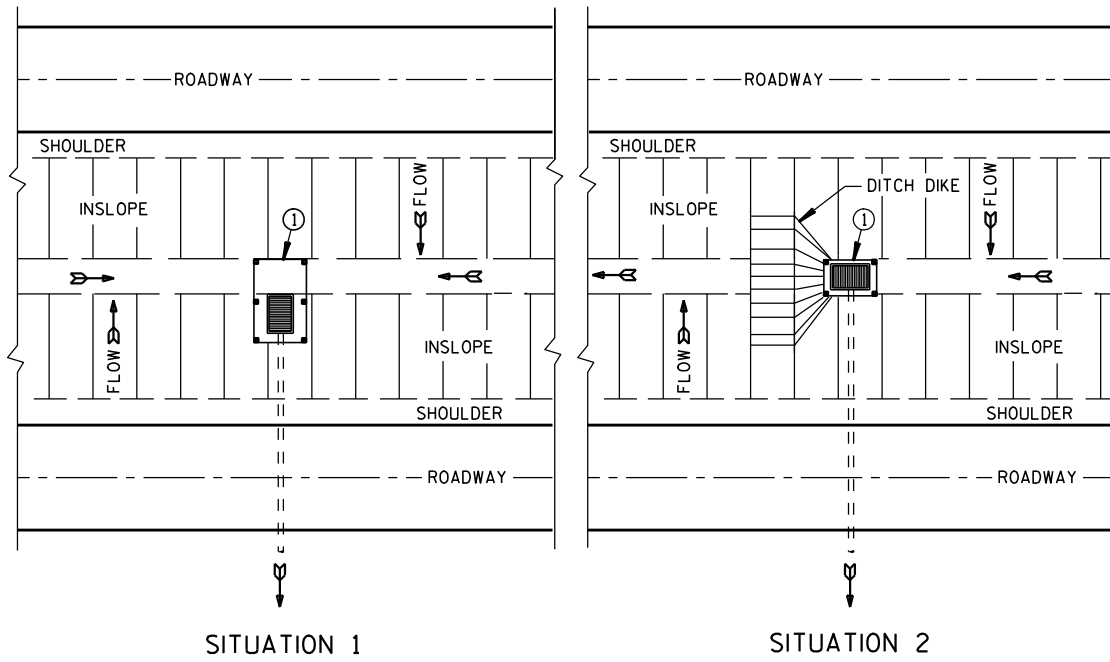
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
ENGINEER

FHWA



PLAN VIEW
TYPICAL APPLICATION OF SILT FENCE

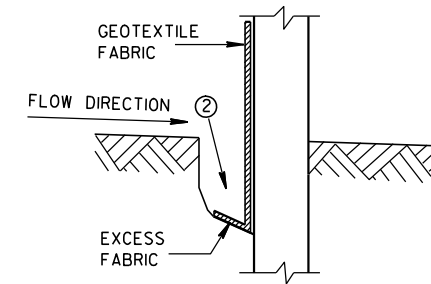


SITUATION 1 SITUATION 2
PLAN VIEW
SILT FENCE AT MEDIAN SURFACE DRAINS

GENERAL NOTES

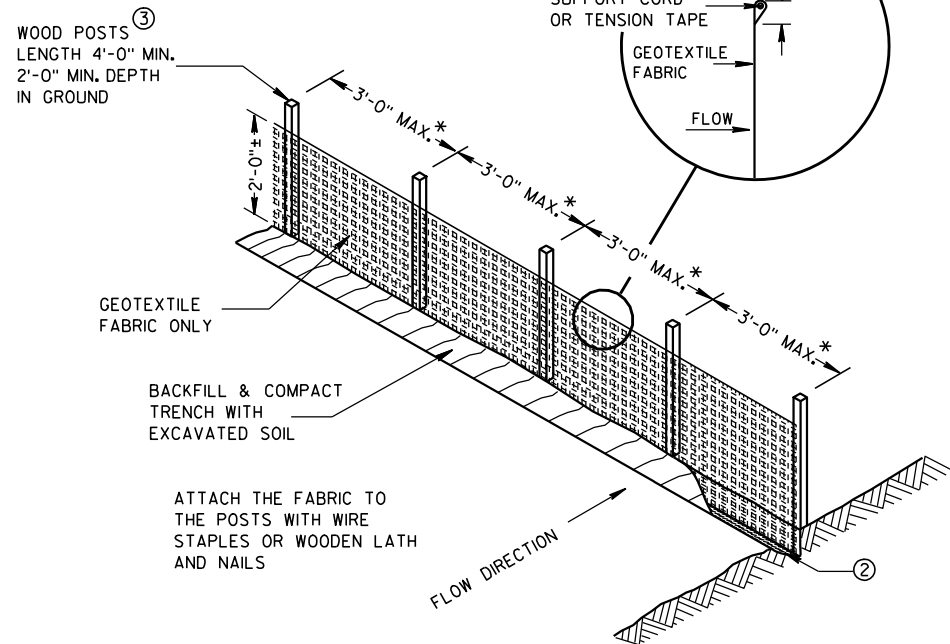
DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

- ① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
- ② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
- ③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1 1/8" X 1 1/8" OF OAK OR HICKORY.
- ④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
- ⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.



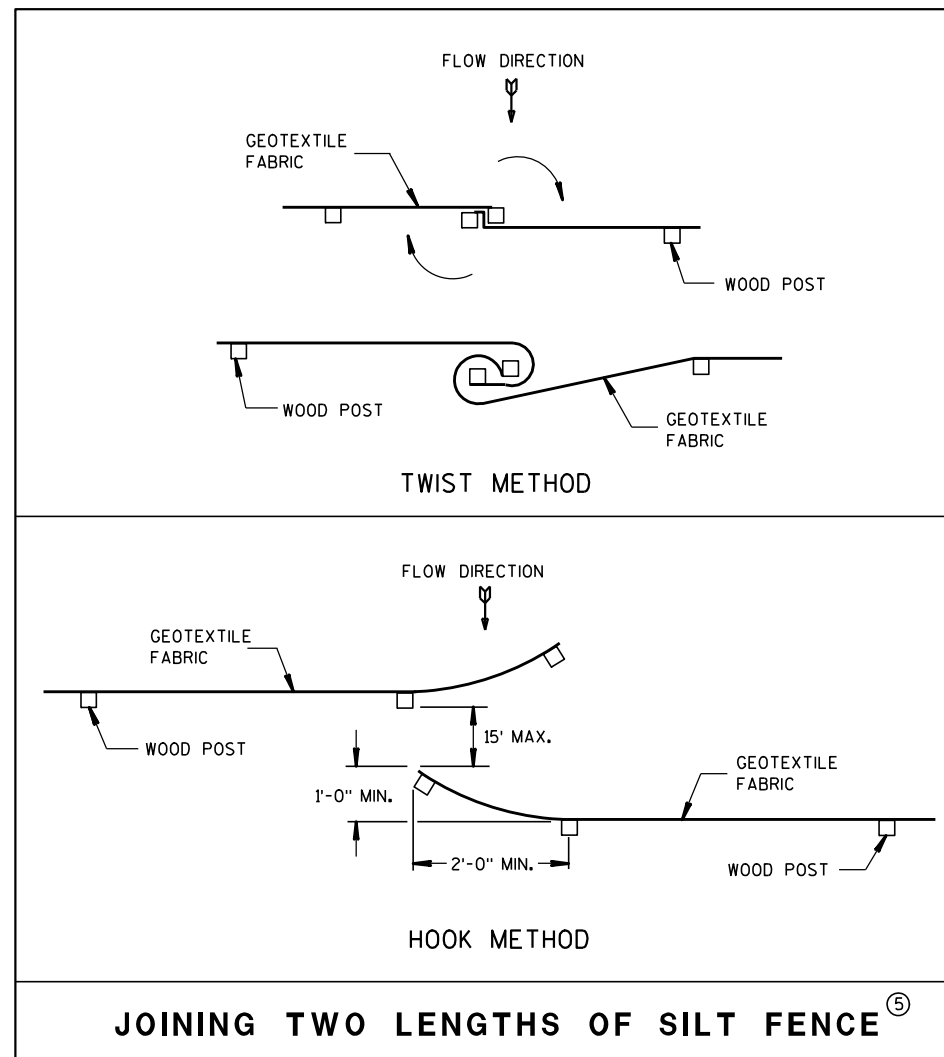
TRENCH DETAIL

NOTE: ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

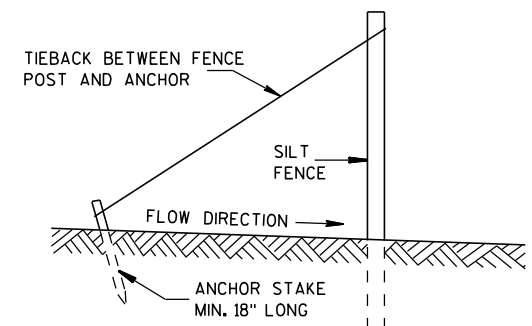


SILT FENCE

* NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.



JOINING TWO LENGTHS OF SILT FENCE ⑤

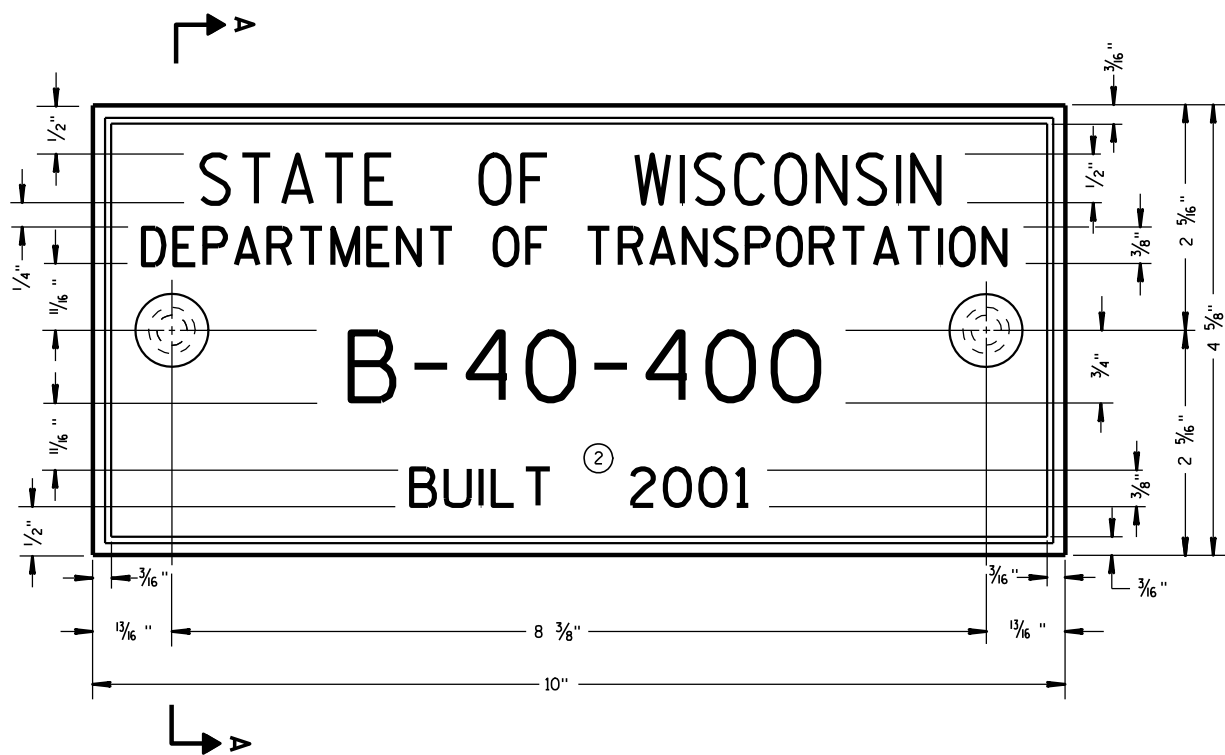


SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4-29-05 /S/ Beth Canestra
DATE CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA



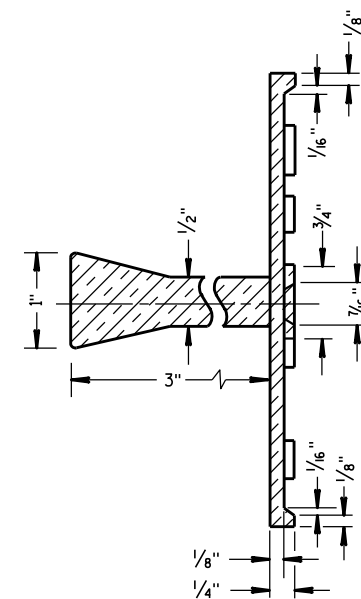
TYPICAL NAME PLATE
(BRIDGES, CULVERTS, AND RETAINING WALLS)

GENERAL NOTES

NAME PLATES TO BE INSTALLED ON BRIDGES, CULVERTS, AND RETAINING WALLS SHALL CONFORM TO THE REQUIREMENTS OF SECTION 502.3.11 OF THE STANDARD SPECIFICATIONS.

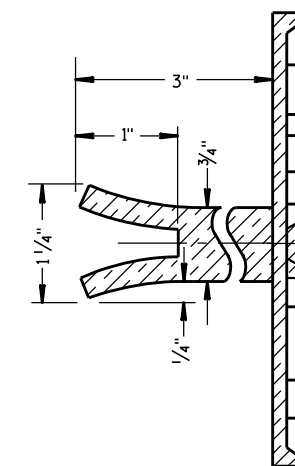
THE BRIDGE NUMBER AND YEAR BUILT SHOWN ON THIS DRAWING ARE EXAMPLES ONLY. SEE CONSTRUCTION PLANS FOR INDIVIDUAL NUMBERING AND YEAR BUILT.

- ① EPOXY RESIN SHALL BE FROM AN APPROVED MANUFACTURER AND USED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ② REHABILITATION OF AN EXISTING STRUCTURE SHOULD USE THE DATE OF ORIGINAL STRUCTURE CONSTRUCTION.

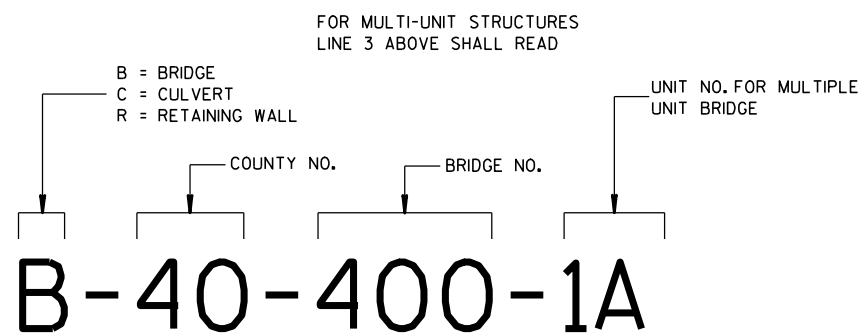


SECTION A-A

SPREAD OPEN SO THE TOP OF LUG IS 1 1/4" WIDE

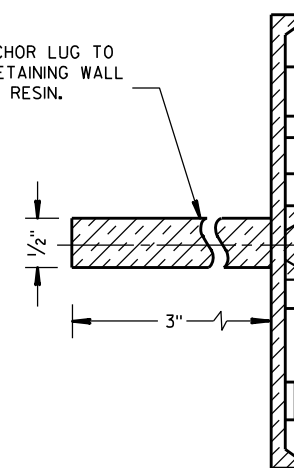


ALTERNATE LUG



**NUMBERING DESIGNATION
MULTI-UNIT STRUCTURES**

- ① ADHERE ANCHOR LUG TO PRECAST RETAINING WALL WITH EPOXY RESIN.

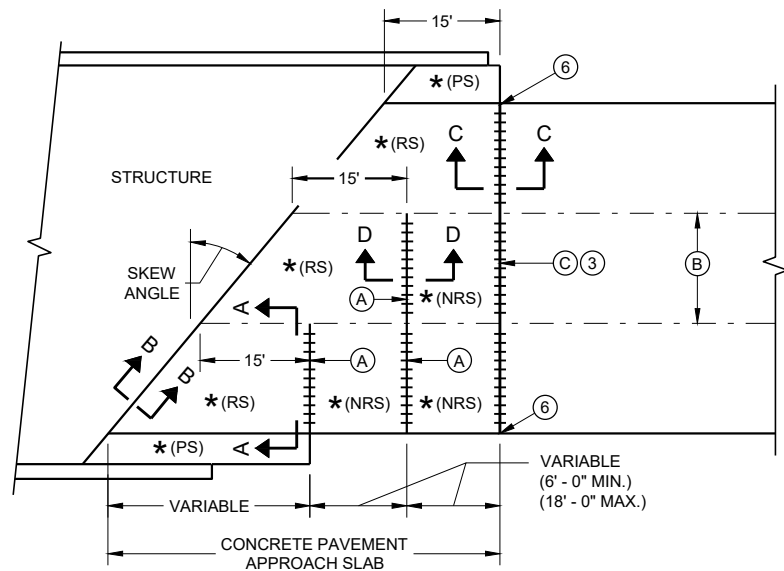


ALTERNATE LUG
(FOR ATTACHMENT TO PRECAST STRUCTURES)

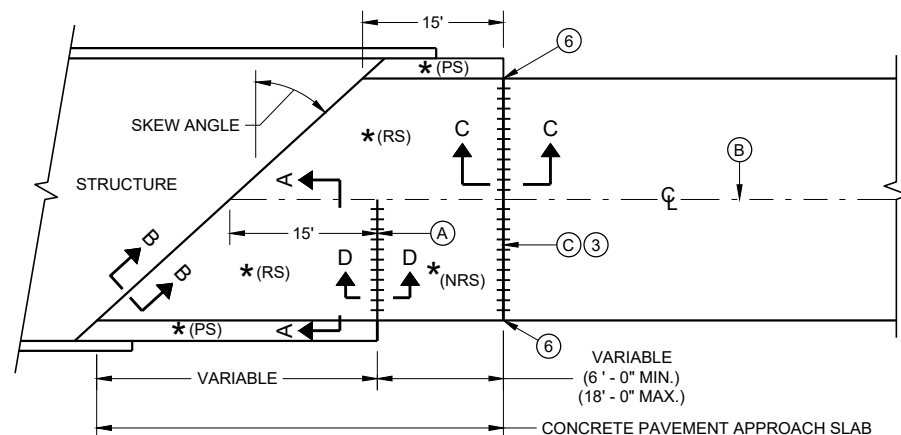
**NAME PLATE
(STRUCTURES)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

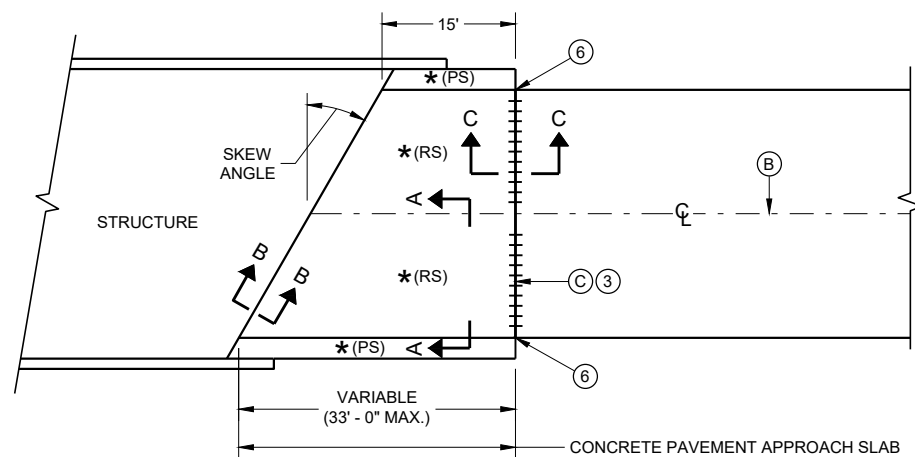
APPROVED
DATE 3/26/10 /S/ Scot Becker
CHIEF STRUCTURAL DEVELOPMENT ENGINEER
FHWA



**SKewed Approach
(Pavement more than two lanes)**

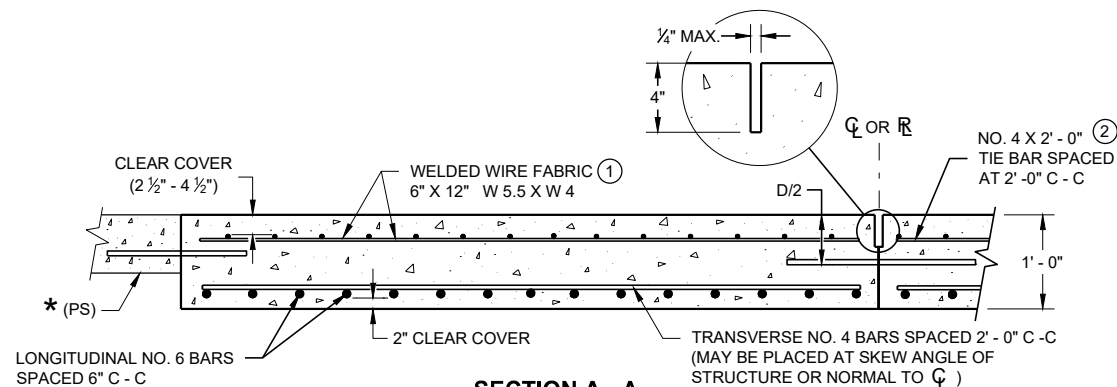


**SKews > 20°
(Pavement width ≤ 30')**

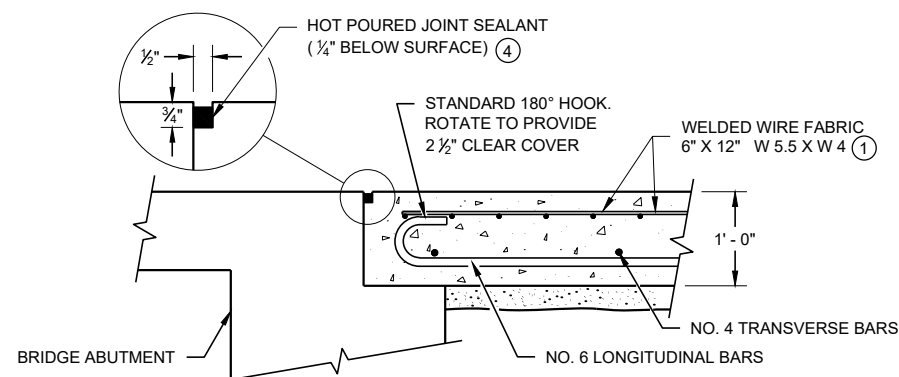


**SKews ≤ 20°
(Pavement width ≤ 30')**
Approach Slab and Adjacent Pavement

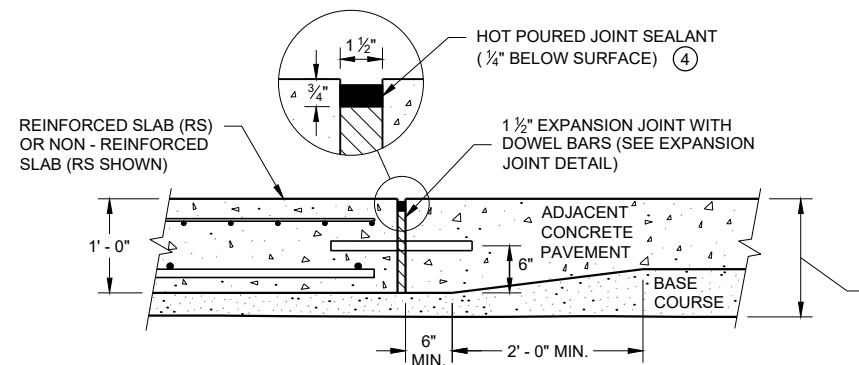
- * (RS) = REINFORCED CONCRETE SLAB
- * (PS) = PAVED CONCRETE SHOULDER OR CONCRETE DRAINAGE SLAB
- * (NRS) = NON - REINFORCED CONCRETE SLAB
- *** STANDARD DOWEL BAR DIAMETER (SEE SDD 13C11 AND SDD 13C13)



**SECTION A - A
REINFORCEMENT POSITIONING DETAIL**



**SECTION B - B
BEND DETAIL
BOTTOM REINFORCEMENT**



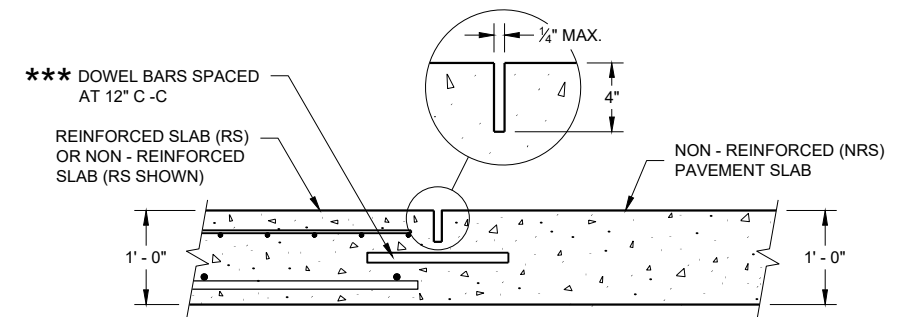
**SECTION C - C
TRANSITION DETAIL
Approach Slab to Adjacent Pavement**

GENERAL NOTES

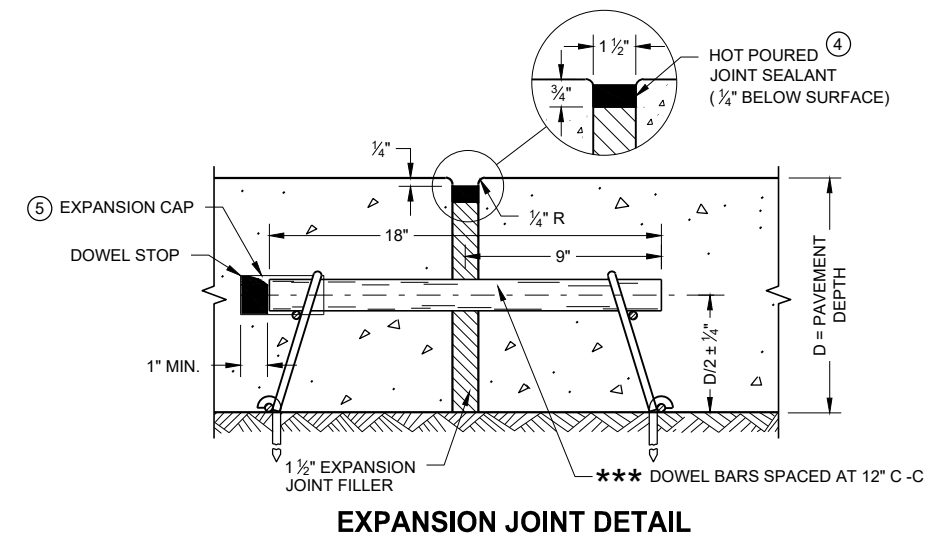
THE CONTRACTOR MAY SPLICE NO. 6 BARS IN THE APPROACH SLAB FOR SKEWED STRUCTURES ONLY. STAGGER SPLICES WITH A MAXIMUM OF ONE SPLICE PER BAR. THE LENGTH OF LAP IS 20 INCHES.

TACK WELD DOWEL BARS TO THE BASKETS ON ALTERNATE ENDS.

- ① THE CONTRACTOR MAY USE NO. 4 BARS SPACED AT 2' - 0" C - C IN BOTH THE LONGITUDINAL AND TRANSVERSE DIRECTIONS FOR TOP REINFORCEMENT AS AN ALTERNATIVE TO THE WELDED WIRE FABRIC.
- ② THE CONTRACTOR MAY OMIT THE BARS BETWEEN REINFORCED SLABS WHERE SLAB REINFORCEMENT BARS EXTEND ACROSS THE CENTERLINE OR REFERENCE LINE.
- ③ DO NOT CONSTRUCT AN EXPANSION JOINT OR INSTALL DOWEL BARS WHEN ABUTTING AN HMA PAVEMENT.
- ④ USE A JOINT SEALANT CONFORMING TO STANDARD SPECIFICATION 415.2.6.
- ⑤ PLACE EXPANSION CAP ON THE END OF THE DOWEL THAT IS NOT TACK WELDED TO THE BASKET. DO NOT FORCE DOWEL BAR PAST THE DOWEL STOP.
- ⑥ EXTEND EXPANSION JOINT THROUGH ANY ADJACENT TIED CONCRETE.
- (A) STANDARD CONTRACTION JOINT NORMAL TO \mathcal{C} OR \mathcal{R} .
- (B) STANDARD LONGITUDINAL JOINT WITH TIE BARS.
- (C) 1 1/2" EXPANSION JOINT WITH DOWEL BARS NORMAL TO \mathcal{C} OR \mathcal{R} .



**SECTION D - D
CONTRACTION JOINT**



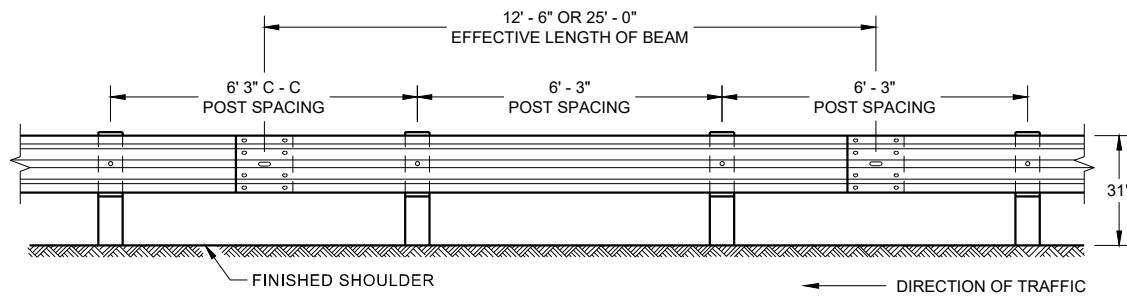
EXPANSION JOINT DETAIL

**CONCRETE PAVEMENT
Approach Slab**

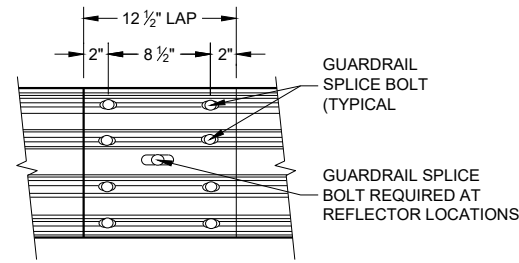
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
November 2018 /S/ Peter Kemp, P.E.
DATE DATE PAVEMENT SUPERVISOR

FHWA



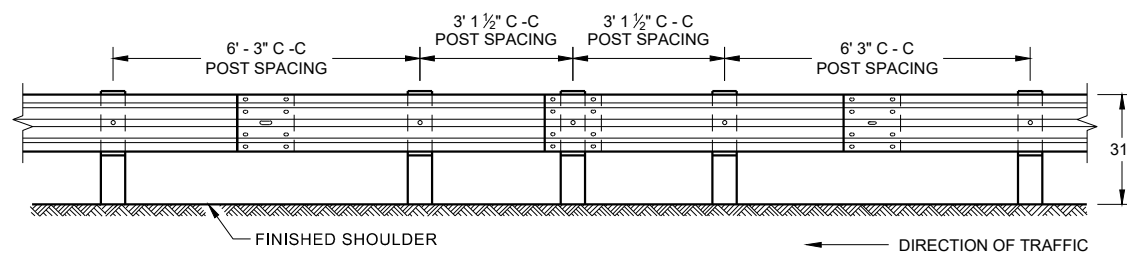
**FRONT VIEW
POST SPACING STANDARD INSTALLATION**



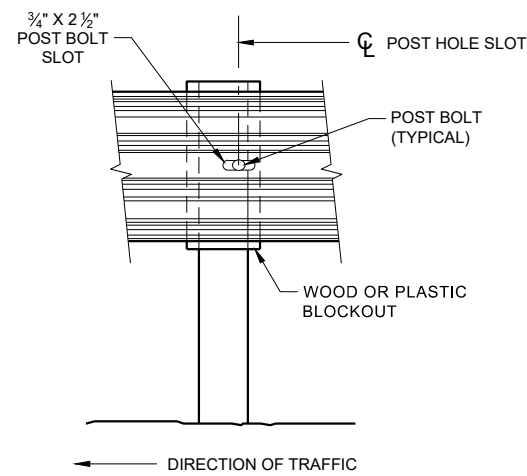
**FRONT VIEW
MID-SPAN BEAM SPLICE**

GENERAL NOTES

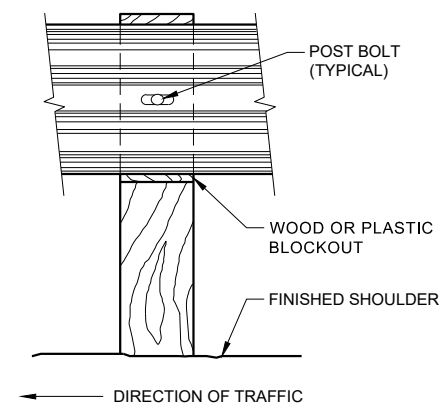
- ⑧ DO NOT INSTALL REFLECTORS ON THE FIRST 50 FEET OF THE APPROACH END OF THE ENERGY ABSORBING TERMINAL.
 - ⑨ 25 FEET OF HALF POST SPACING IS REQUIRED ON APPROACH AND DEPARTURE ENDS OF QUARTER POST SPACING.
- POST BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL BOLT. A POST BOLT REQUIRES 3/4" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT AND 3/8" DIAMETER F844 FLAT WASHER. POST BOLTS MAY BE LONGER IF MULTIPLE BLOCKOUTS ARE BEING USED.
- GUARD RAIL SPLICE BOLTS ARE A 3/8" DIAMETER ASTM A307 GUARDRAIL HEAD BOLT. A GUARDRAIL SPLICE BOLT REQUIRES 3/8" DIAMETER A563A DOUBLE RECESSED (DR) HEAVY HEX NUT.



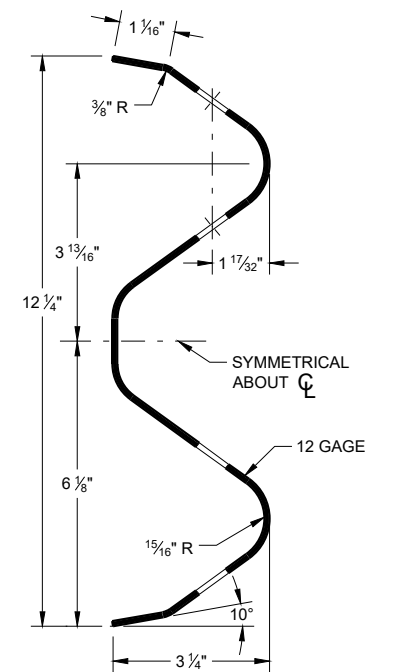
**FRONT VIEW
HALF POST SPACING (HS) AND
HALF POST SPACING WITH LONGER POSTS (K)**



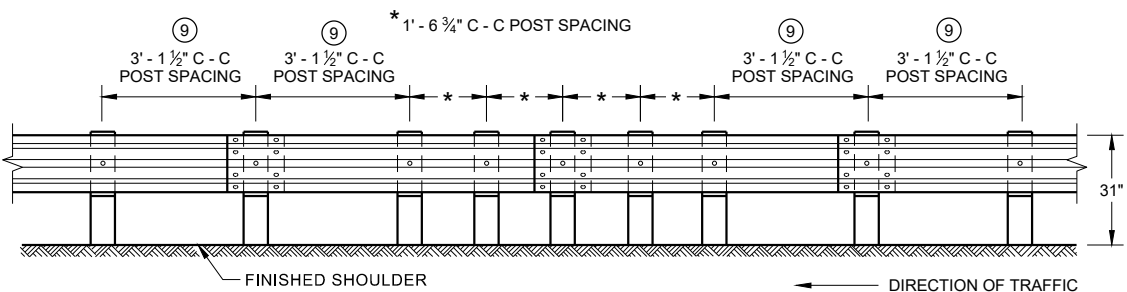
FRONT VIEW AT STEEL POST



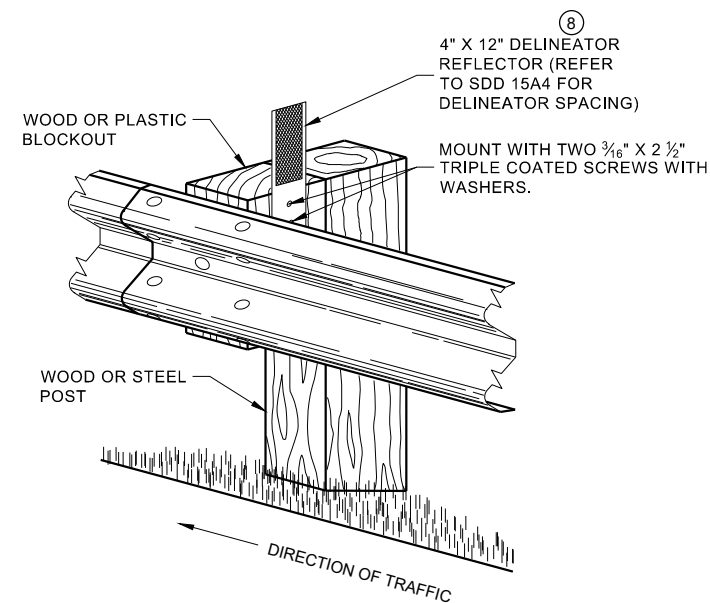
FRONT VIEW AT WOOD POST



SECTION THRU W-BEAM RAIL



**FRONT VIEW
QUARTER POST SPACING (QS)**



**ONE SIDED REFLECTOR DETAIL
AND TYPICAL INSTALLATION**

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

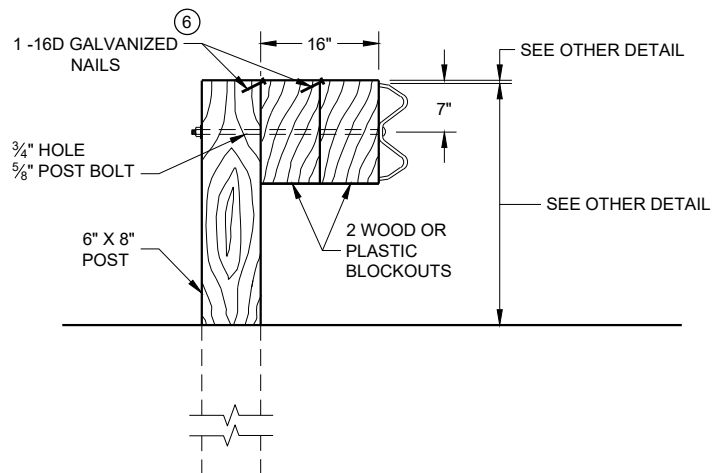
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

6

SDD 14B42 - 07b

SDD 14B42 - 07b

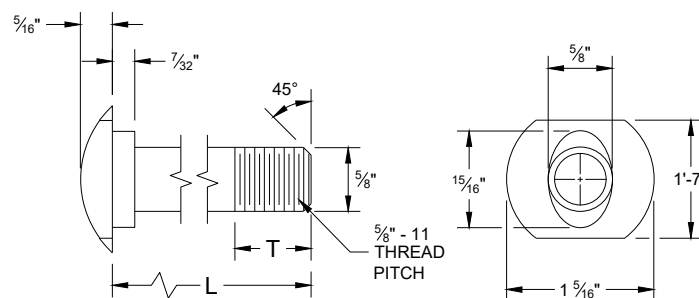


DETAIL FOR 16" BLOCKOUT DEPTH

IT IS ACCEPTABLE TO USE BLOCKOUTS UP TO 16" DEEP TO INCREASE THE POST OFFSET TO AVOID UNDERGROUND OBSTACLES. THERE IS NO LIMIT TO THE NUMBER OF POSTS THAT CAN HAVE ADDITIONAL BLOCKOUTS UP TO 16" DEEP.

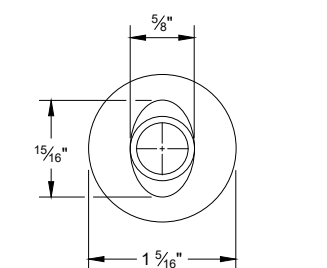
NOTE:

1. ALL FILLETS SHALL HAVE A MINIMUM RADIUS OF 3/16".
2. IF THE BOLT EXTENDS MORE THAN 1/4" FROM THE NUT THE BOLT SHOULD BE TRIMMED BACK.

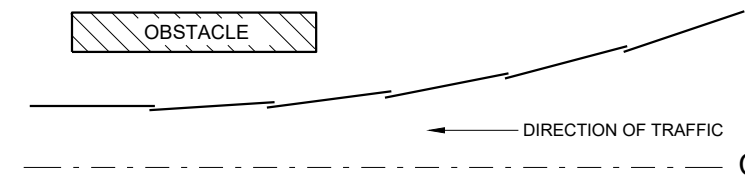


POST BOLT TABLE

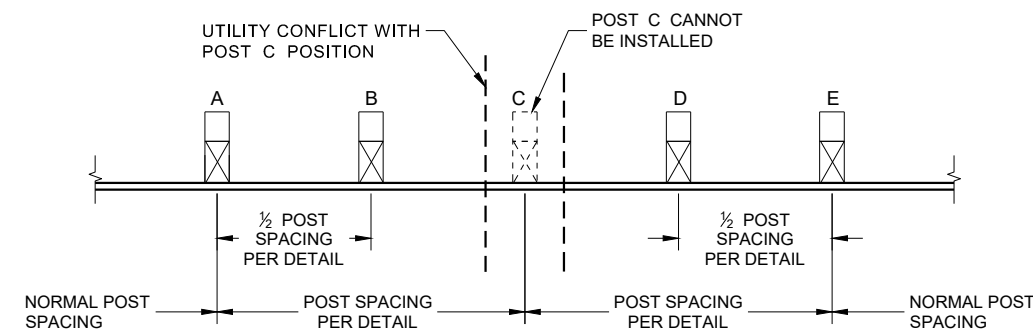
L	T (MIN.)
1 1/4"	1 1/8"
2"	1 3/4"
10"	4"
14"	4 1/16"
18"	4"
21"	4 1/16"
25"	4"



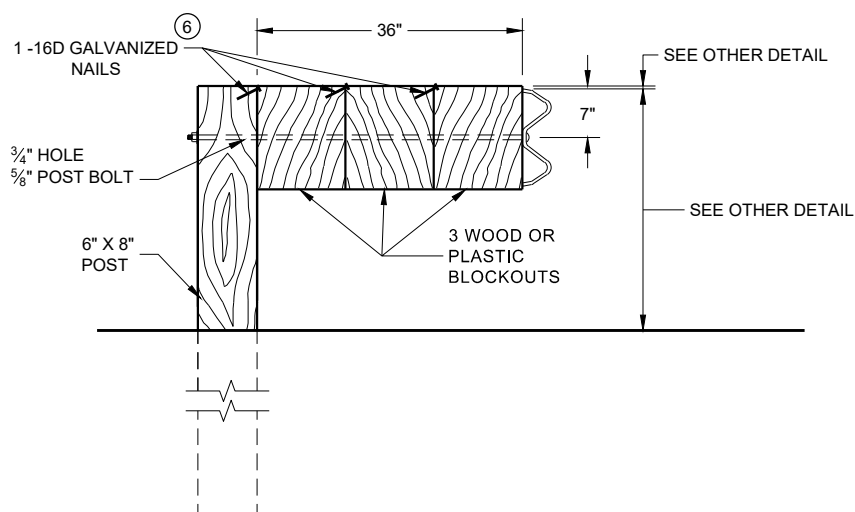
ALTERNATE BOLT HEAD



**PLAN VIEW
BEAM LAPPING DETAIL**

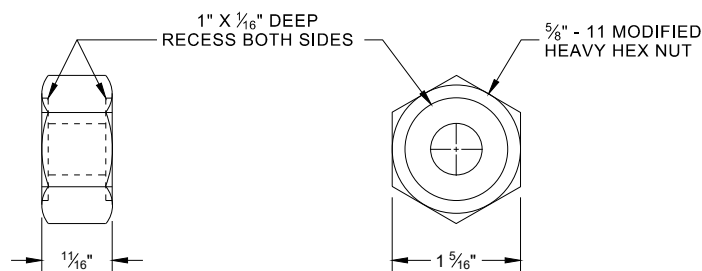


**POST DRIVING FOR CONTINUOUS
UNDERGROUND OBSTRUCTION**

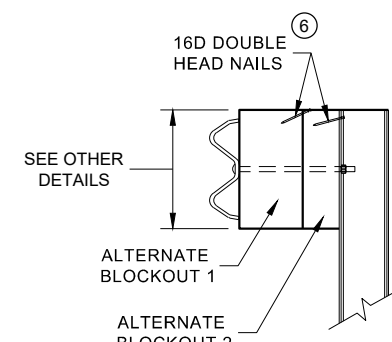


DETAIL FOR 36" BLOCKOUT DEPTH

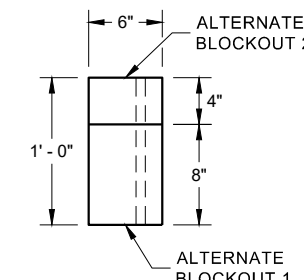
NOTES: UNDER SPECIAL CIRCUMSTANCES, SUCH AS AVOIDING OBSTACLES THAT ARE NOT RELOCATED, IT IS ACCEPTABLE TO INSTALL ADDITIONAL BLOCKOUTS TO OBTAIN UP TO 36" DEPTH FOR ONE OR TWO POSTS IN A SECTION OF GUARDRAIL.
DO NOT USE 16" OR 36" BLOCKOUTS IF IT CAUSES THE POST TO BE DRIVEN BEYOND SHOULDER HINGE POINT OR CAUSES A FIXED OBJECT TO BE WITHIN THE DEFLECTION DISTANCE OF THE BARRIER.



**POST BOLT, SPLICE BOLT
AND RECESS NUT**



SIDE VIEW



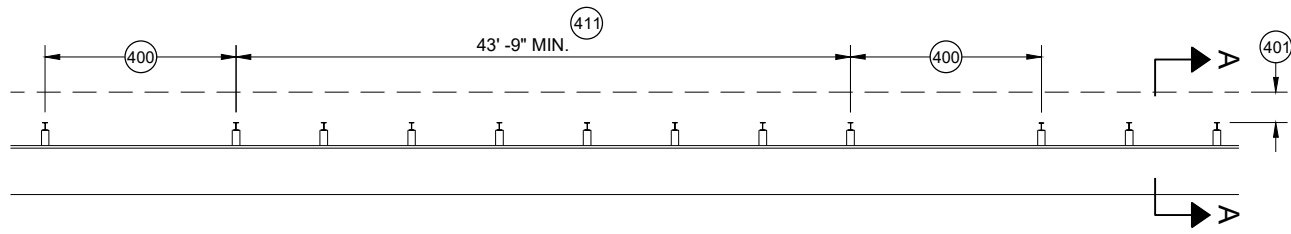
PLAN VIEW

**ALTERNATE WOOD
BLOCKOUT DETAIL**

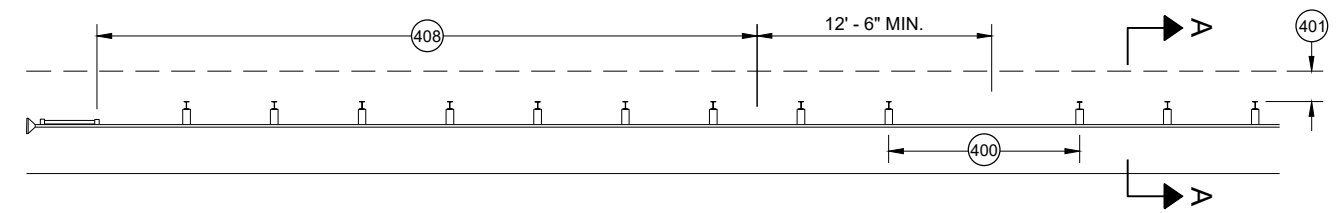
6 WHEN USING STEEL POST AND WOOD BLOCKOUTS, INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.

**MIDWEST GUARDRAIL SYSTEM
(MGS) GUARDRAIL**

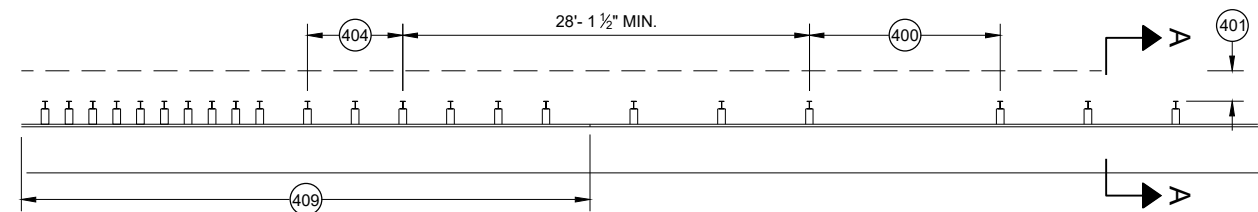
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



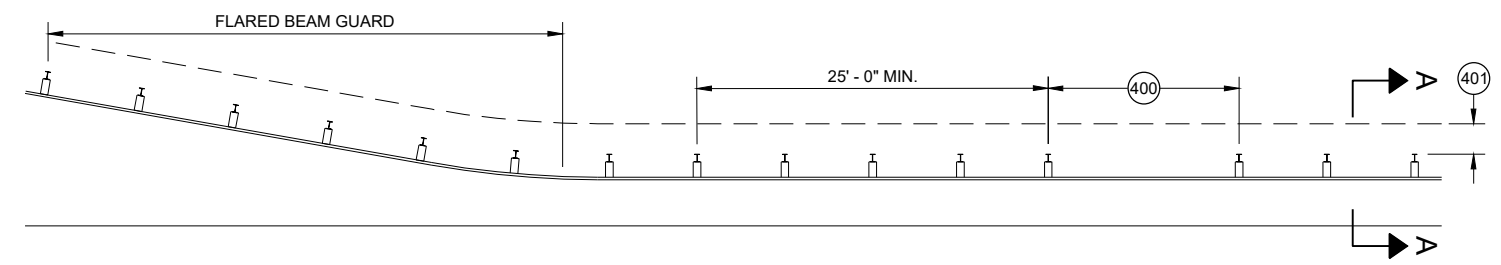
MISSING POST IN MGS GUARDRAIL



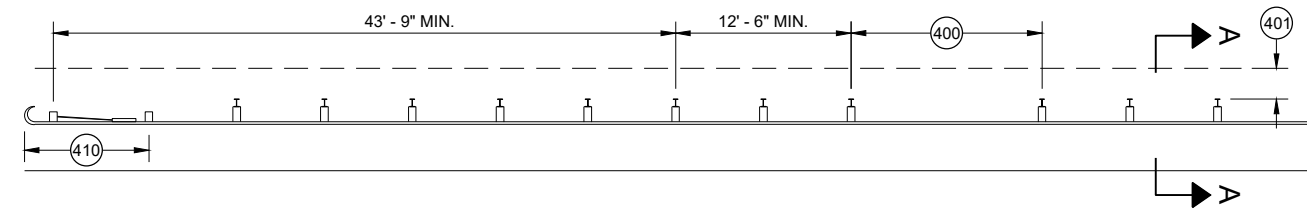
MISSING POST IN MGS GUARDRAIL NEAR EAT



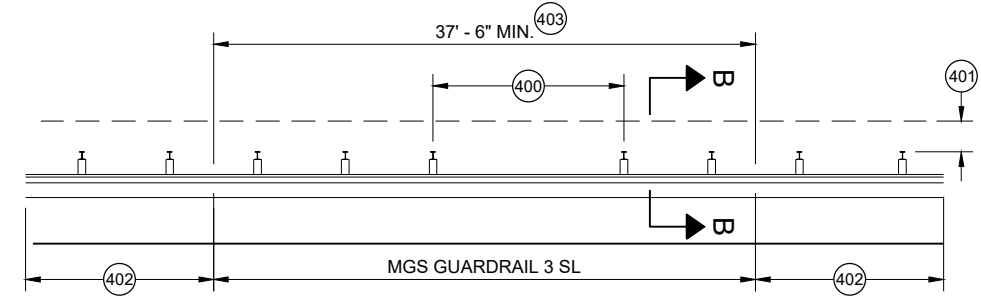
MISSING POST IN MGS GUARDRAIL NEAR AN APPROACH TRANSITION



MISSING POST IN MGS GUARDRAIL NEAR FLARED BEAM GUARD

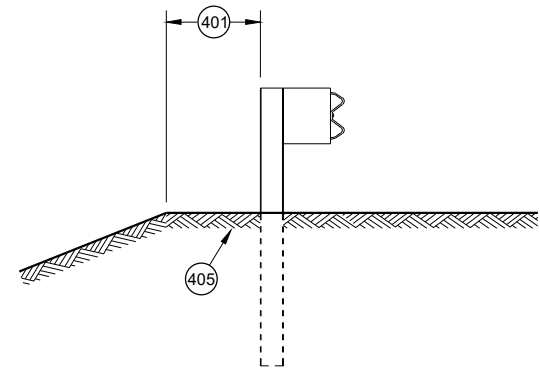


MISSING POST IN MGS GUARDRAIL NEAR A TYPE 2 END TERMINAL

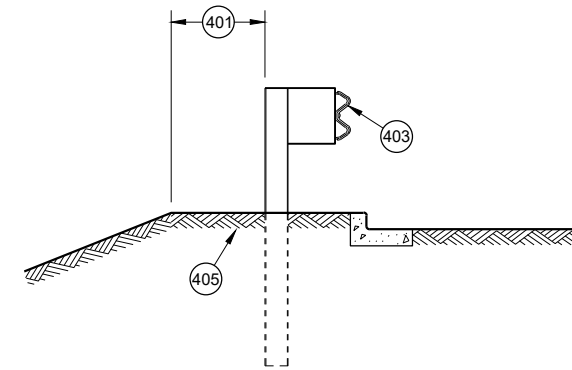


MISSING POST IN SHORT SPAN MGS GUARDRAIL NEAR CURB (SL)

- 400 MAX SPAN 12' - 6"
- 401 2' MIN.
- 402 MGS GUARDRAIL 3
- 403 NESTING BEAM GUARD
- 404 ASYMMETRIC TRANSITION
- 405 SOIL WELL DRAINED AND COMPACTED
- 406 SEE OTHER DRAWINGS IN THIS SDD
- 407 SEE OTHER DRAWINGS FOR MIN. SPACING BETWEEN SPANS
- 408 SEE SDD 14B44
- 409 SEE SDD 14B45
- 410 SEE SDD 14B47
- 411 MINIMUM DISTANCE BETWEEN MISSING POST SPANS.

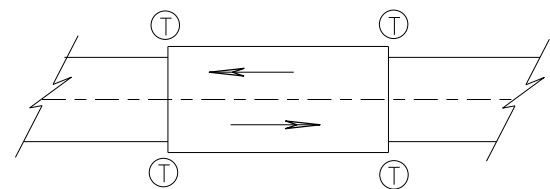


SECTION A - A

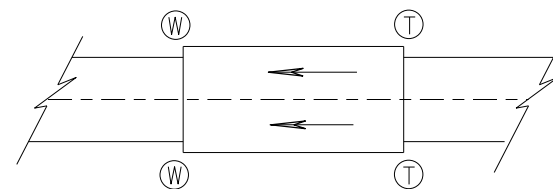


SECTION B - B

MIDWEST GUARDRAIL SYSTEM (MGS) GUARDRAIL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED May 2021 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
<small>FHWA</small>	



TWO WAY TRAFFIC



ONE WAY TRAFFIC

(T) THRIE BEAM CONNECTION

(W) W-BEAM CONNECTION WHEN REQUIRED

TYPICAL LOCATIONS OF THRIE BEAM AND W-BEAM CONNECTIONS TO BRIDGE

GENERAL NOTES

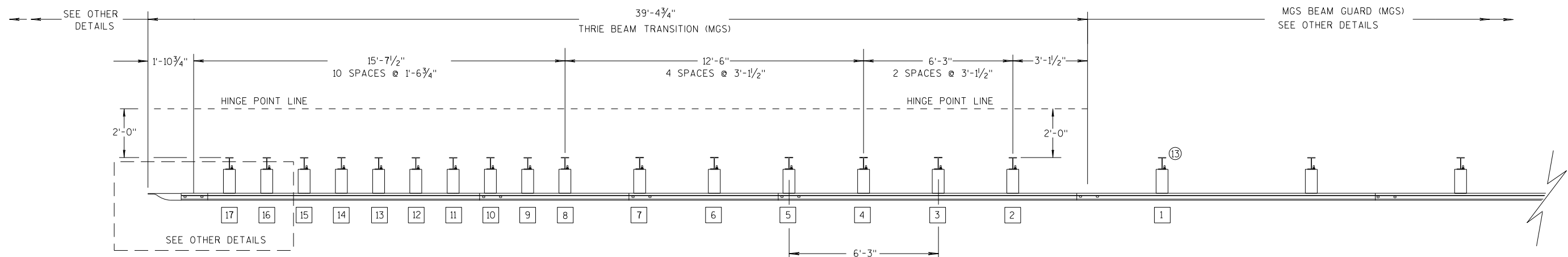
IF ROCK IS ENCOUNTERED, REMOVE ROCK TO FULL DEPTH OF POST PLUS 2 1/2", AND 12" DIAMETER AROUND POST. SEE 14B42 FOR MORE DETAILS.

TRANSITION USES STEEL POSTS ONLY.

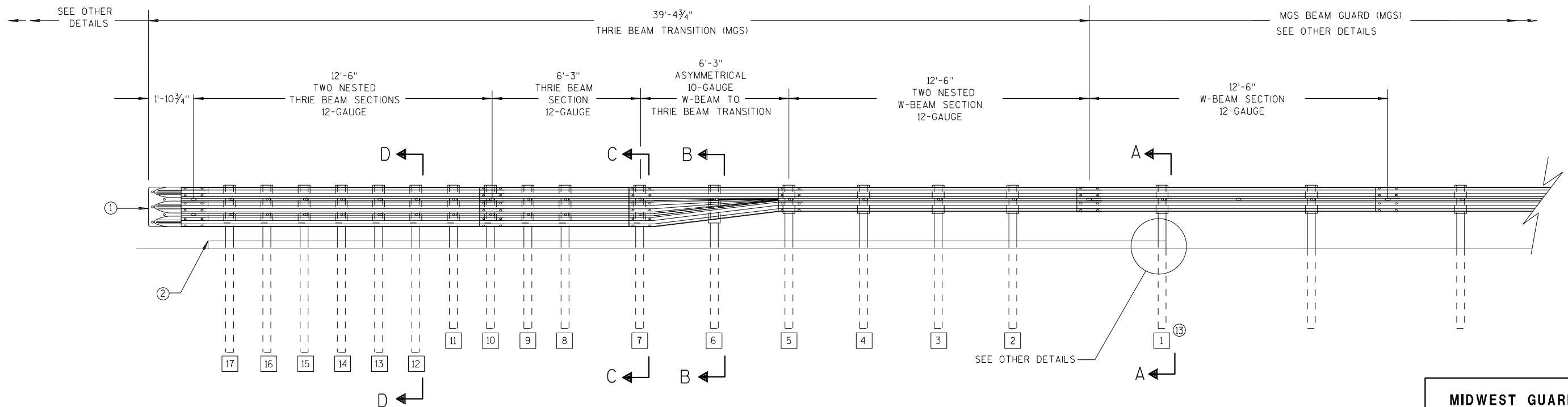
SEE STANDARD DETAIL DRAWING 14 B 42 FOR MORE INFORMATION.

POST 2 THROUGH 17 USES STEEL POST ONLY

- ① BRIDGE RAILING TYPE "W" DOES NOT REQUIRE A TERMINAL CONNECTOR.
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD14B42



PLAN VIEW



ELEVATION VIEW

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION

**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

6

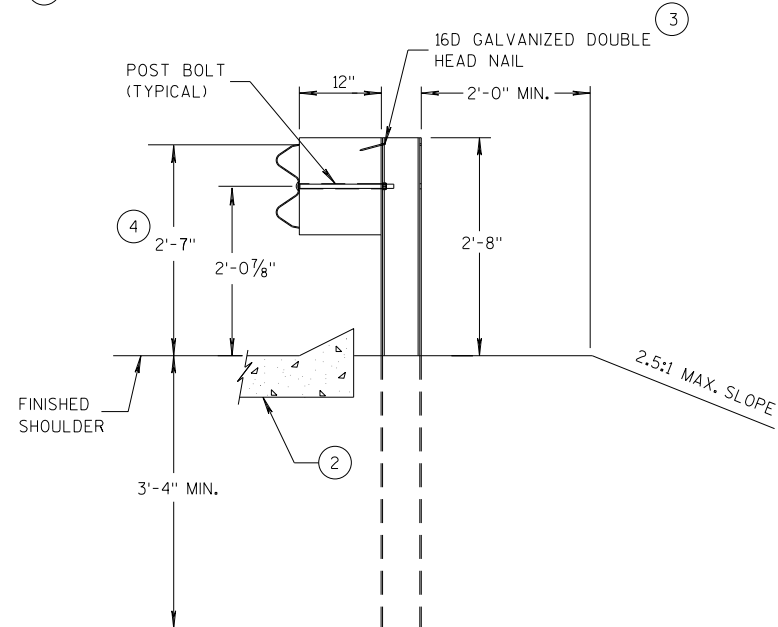
6

S.D.D. 14 B 45-5a

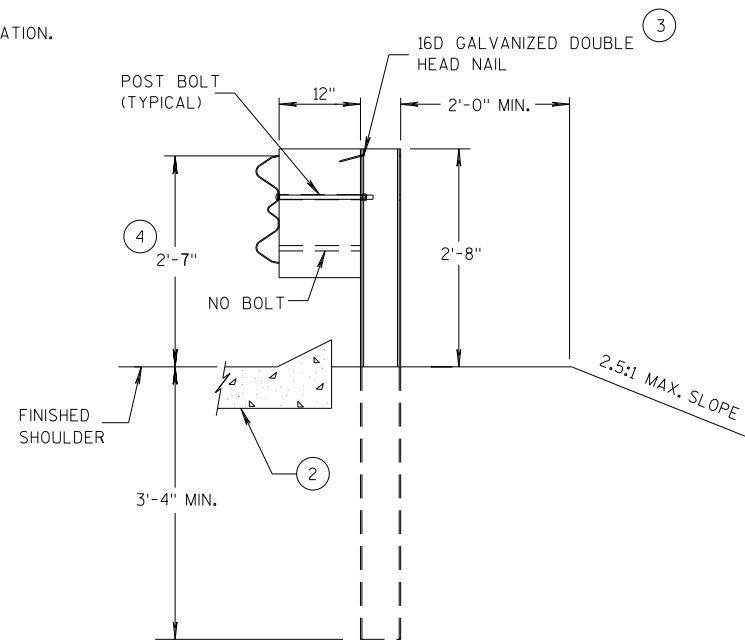
S.D.D. 14 B 45-5a

GENERAL NOTES

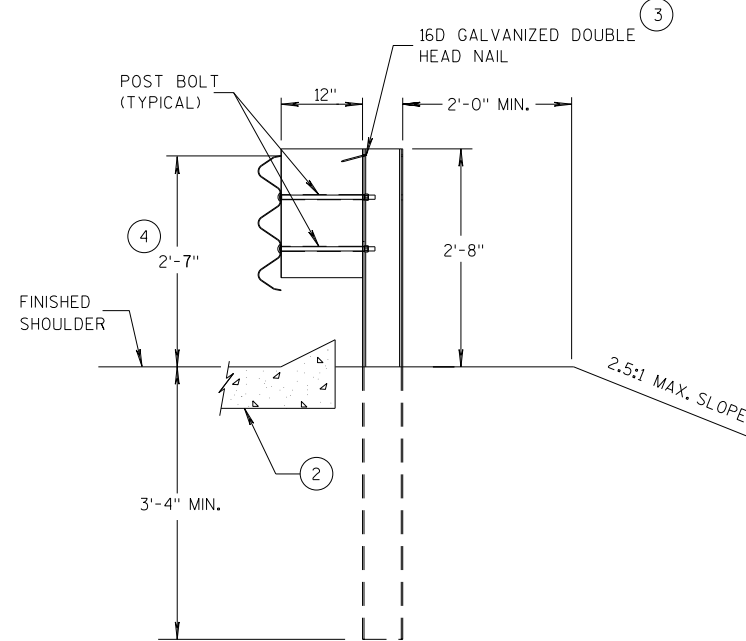
- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ③ WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 10D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- ④ TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".
- ⑬ STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42



**SECTION A-A
POSTS 1-5**



**SECTION B-B
POST 6**



**SECTION C-C
POSTS 7-11**

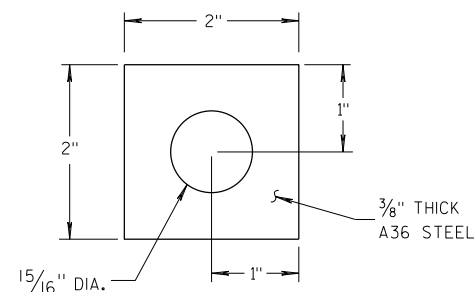
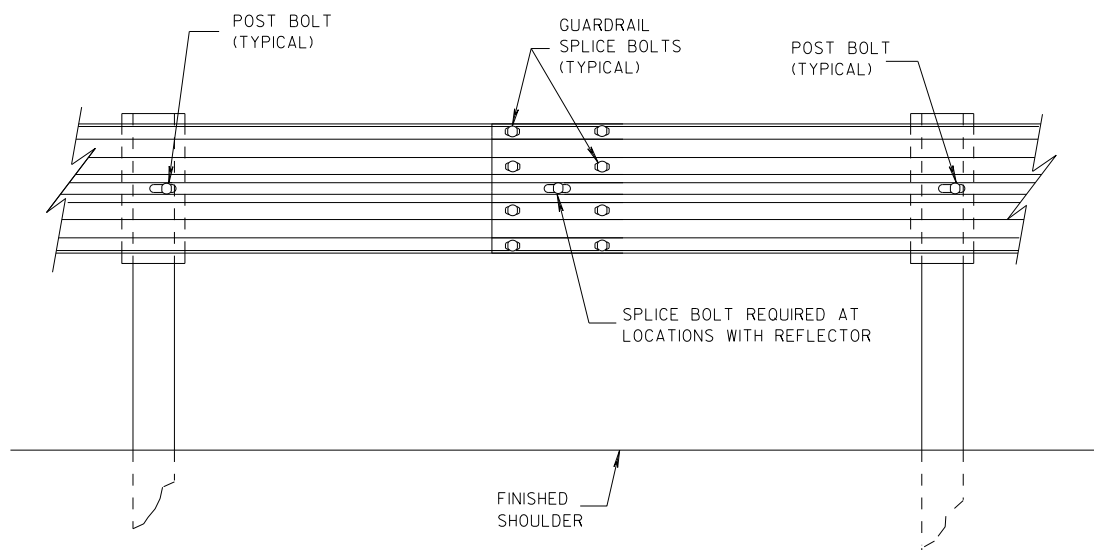
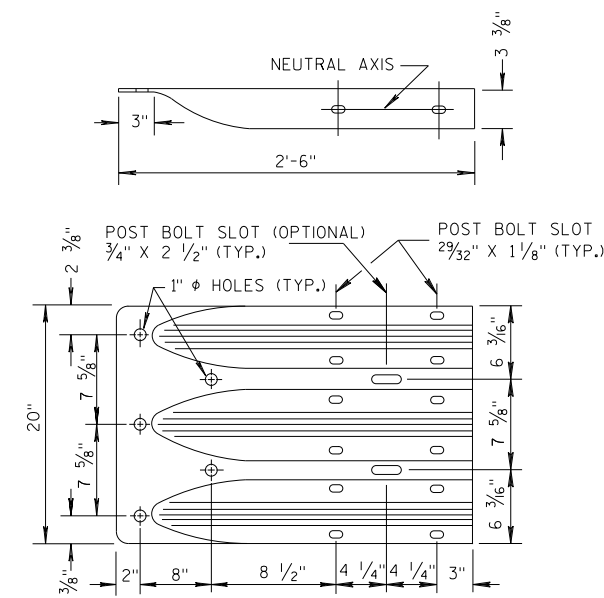


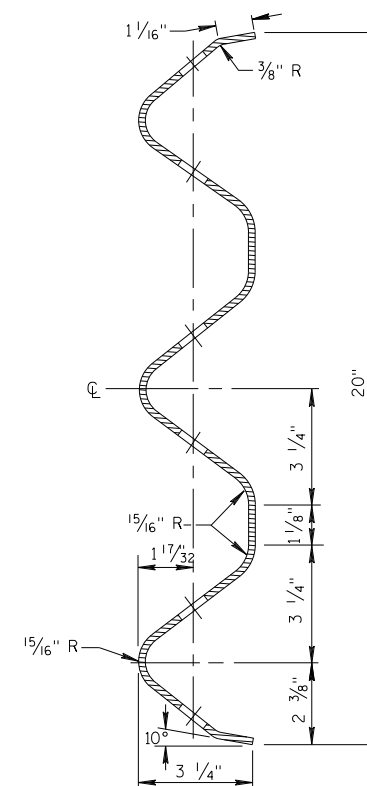
PLATE WASHER DETAIL



SPLICE DETAIL



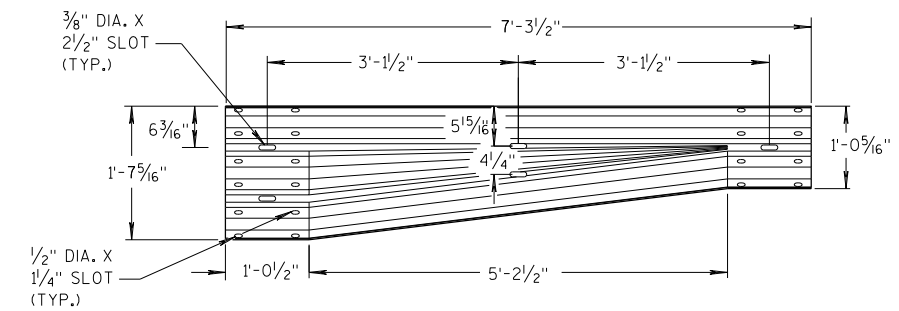
**THRIE BEAM
TERMINAL CONNECTOR**



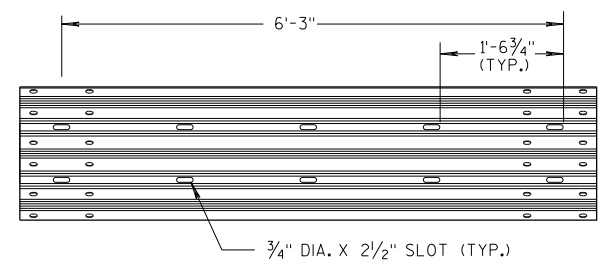
**SECTION THRU THRIE
BEAM RAIL ELEMENT**

**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

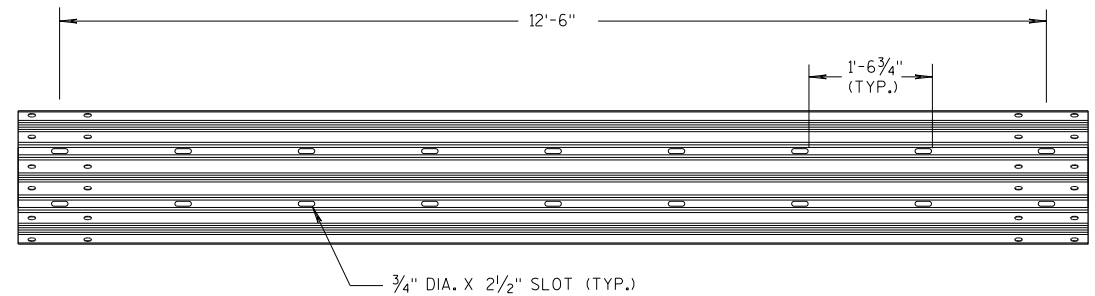
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



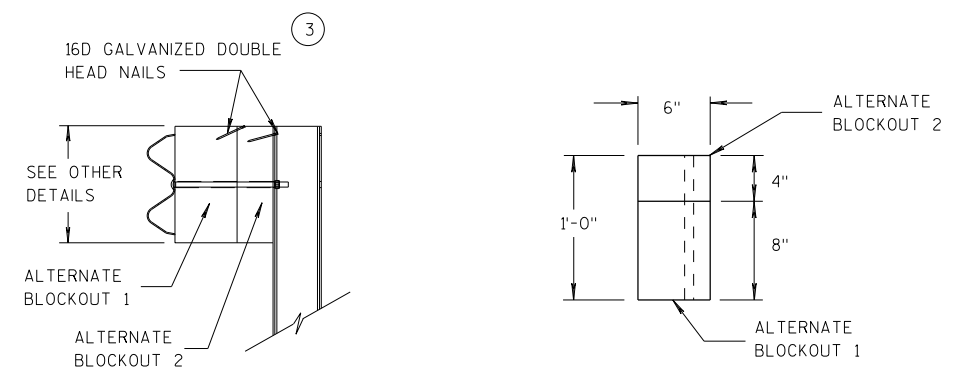
W-BEAM TO THRIE BEAM TRANSITION SECTION



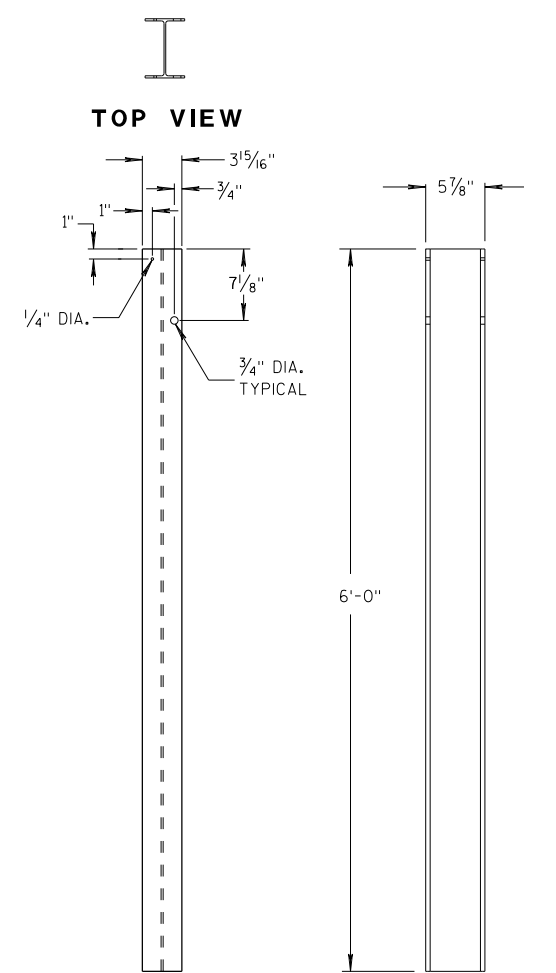
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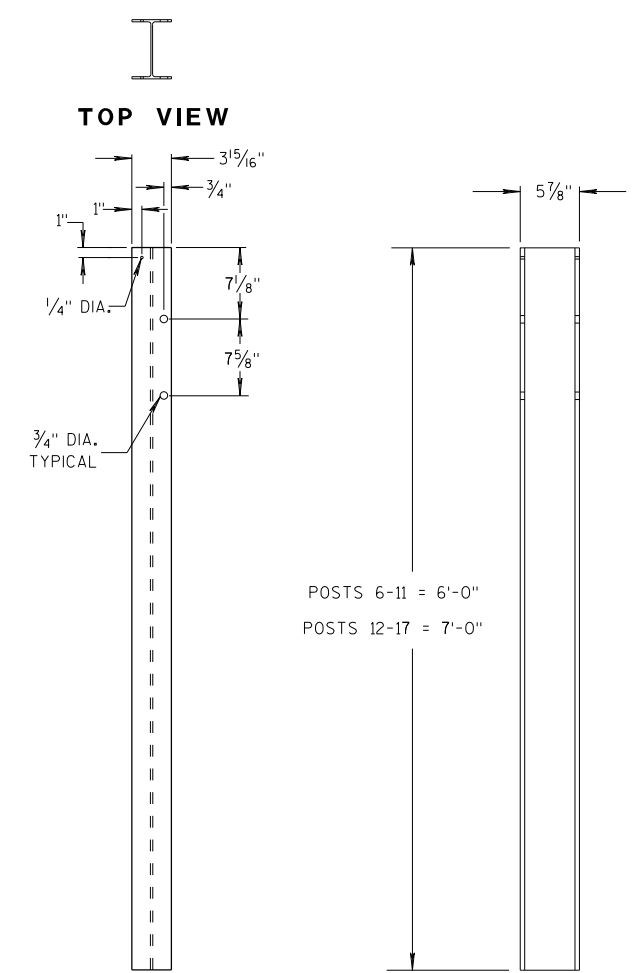
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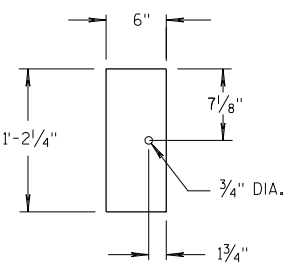
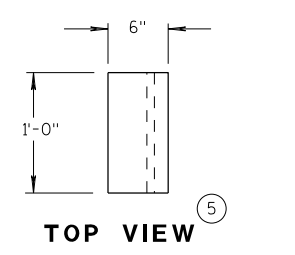
ALTERNATE WOOD BLOCKOUT DETAIL



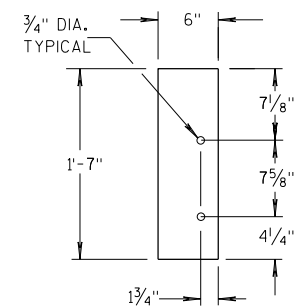
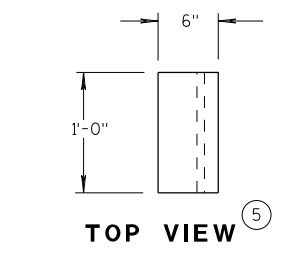
STEEL POSTS 1-5



STEEL POSTS 6-17



BLOCKOUT POSTS 1-5



BLOCKOUT POSTS 6-17

GENERAL NOTES

- STEEL POSTS ARE W6X9 OR W6X8.5.
- BOLT HOLES FOR POST ARE ON FRONT AND OF SIDE OF POST.
- (3) WHEN USING STEEL POSTS AND WOOD BLOCKOUTS INSTALL FOUR 16D GALVANIZED NAILS. INSTALL NAILS AT THE BACK CORNERS OF THE BLOCK AND BEND THE NAILS OVER THE FLANGE OF THE STEEL POST.
- (5) WOOD BLOCKS MAY BE CONSTRUCTED OUT OF 2 WOOD BLOCKS. SEE ALTERNATE WOOD BLOCK DETAIL.
- (13) STEEL OR WOOD POST IS ACCEPTABLE AT POST 1. SEE SDD 14B42.

**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

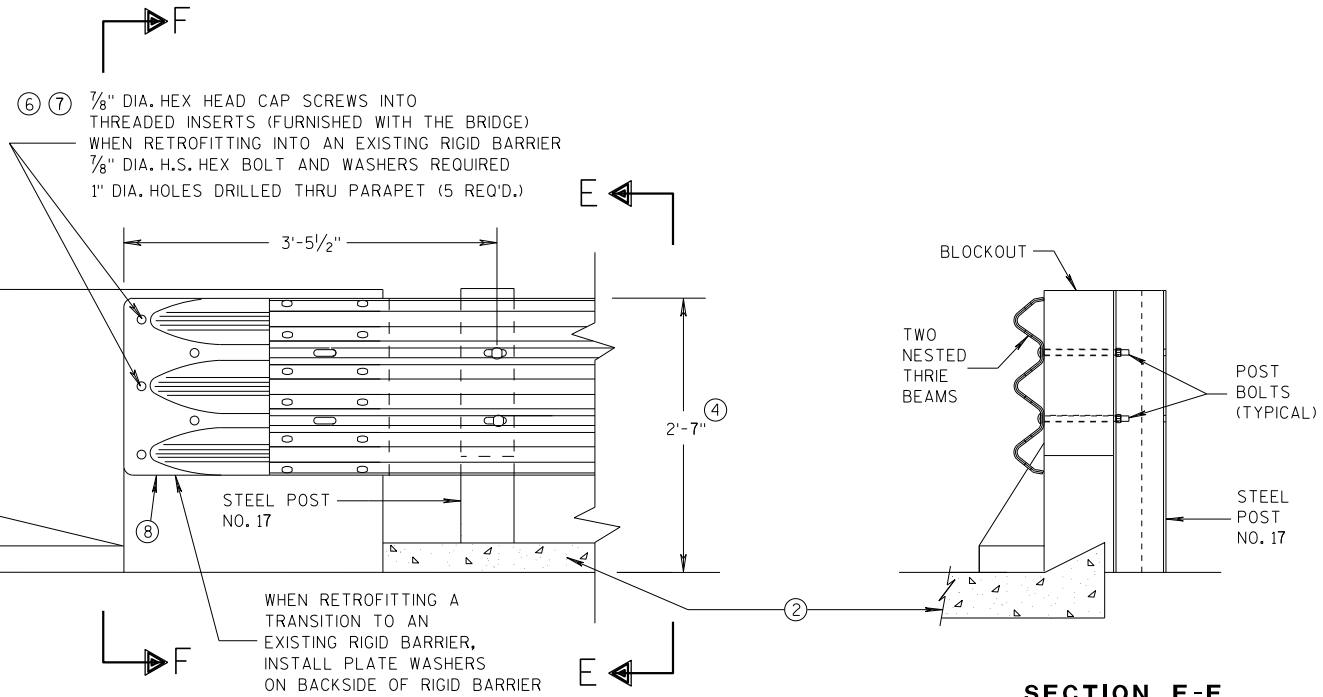
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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S.D.D. 14 B 45-5c

S.D.D. 14 B 45-5c



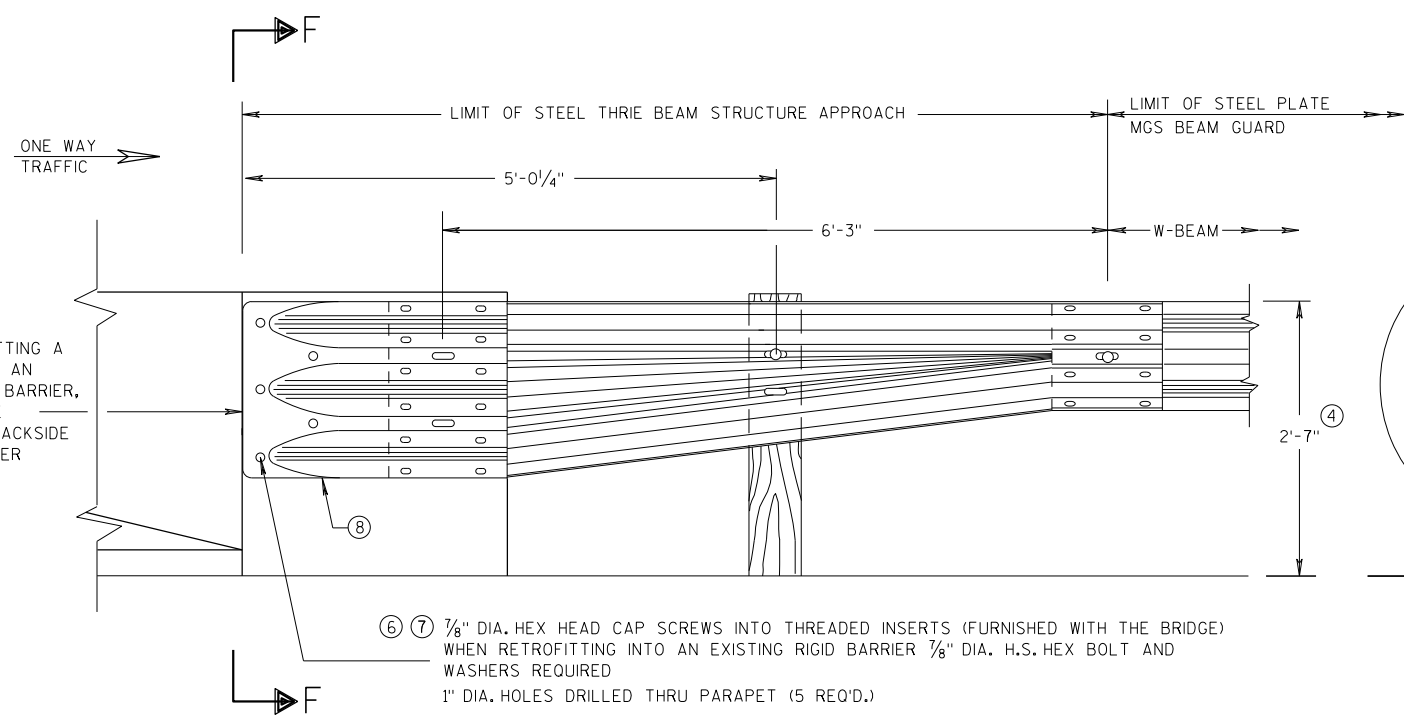
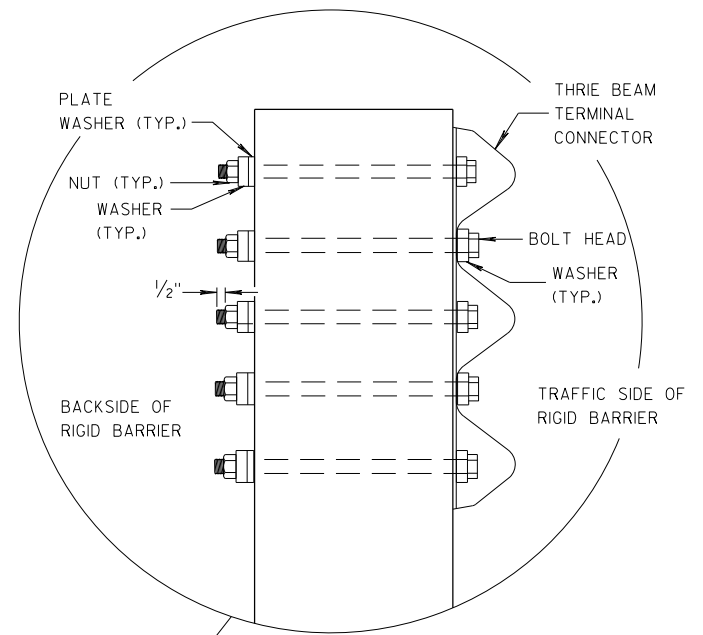
FRONT VIEW

THRIE BEAM CONNECTION TO BRIDGE PARAPET WITH SQUARE ENDS

SECTION E-E

GENERAL NOTES

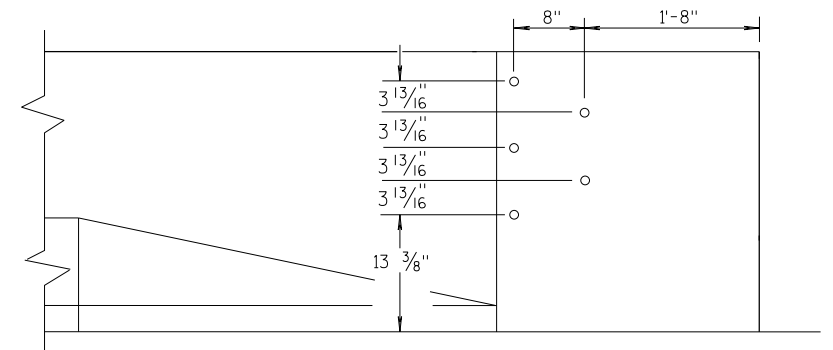
- THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.
- (2) OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- (4) TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- (6) DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
- (7) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. BOLTS THAT EXTEND THROUGH THE PARAPET AND OUT THE BACK FACE REQUIRE A HARDENED ROUND STEEL WASHER THAT IS 2" O.D. X 5/32" THICK AND ONE PLATE WASHER. REPAIR ANY DAMAGED CONCRETE FROM BOLT INSTALLATION.
- (8) THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".



FRONT VIEW

**W BEAM TRANSITION AND CONNECTION TO BRIDGE PARAPETS WITH SQUARE ENDS
(USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)**

SECTION F-F



DRILL HOLE LOCATION

MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 07/2018 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	

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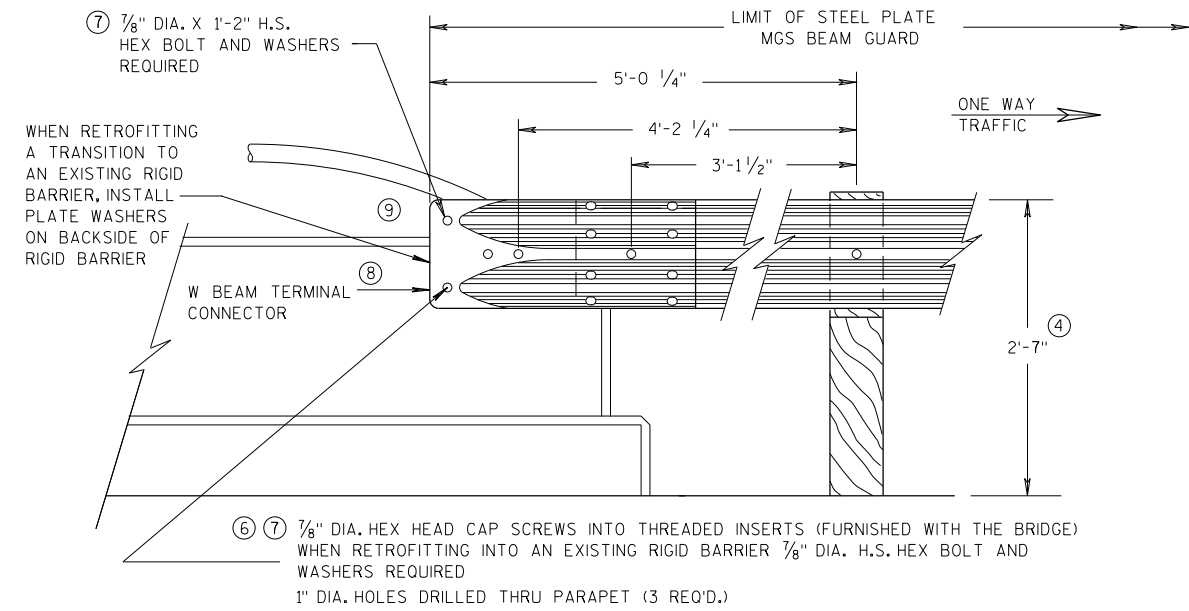
S.D.D. 14 B 45-5d

S.D.D. 14 B 45-5d

GENERAL NOTES

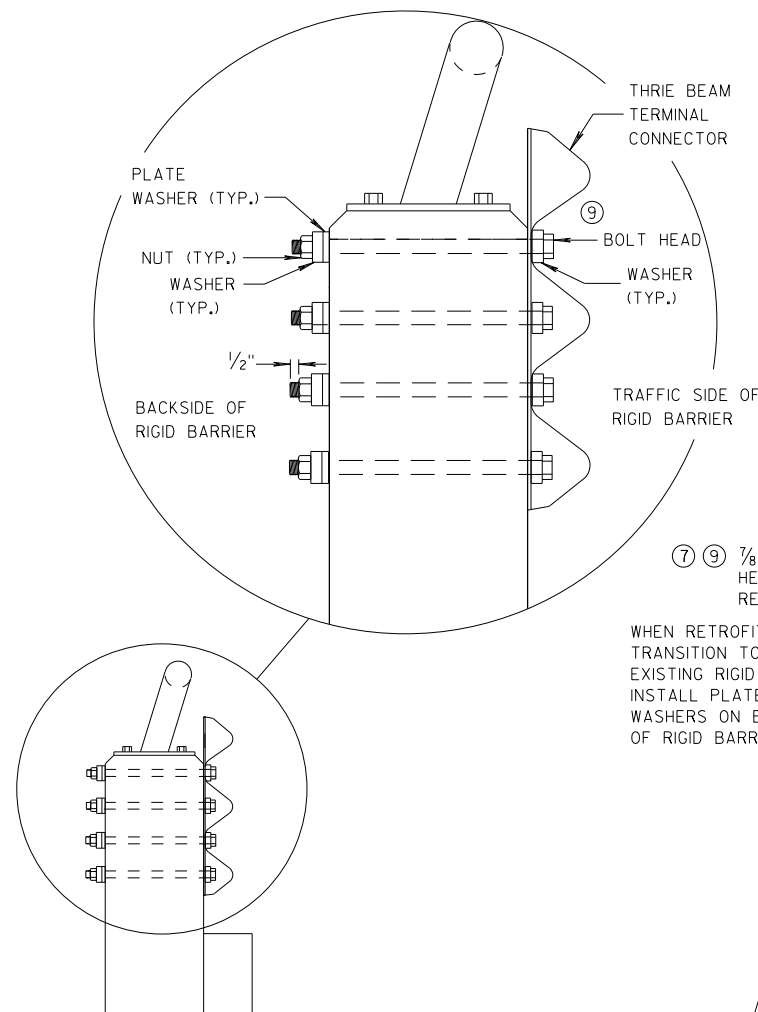
THESE ARE TYPICAL CONNECTION DETAILS. ADJUST THE POSITION OF CONNECTIONS TO EXISTING BRIDGES TO FIT THE ACTUAL BRIDGE AND SITE DIMENSIONS.

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
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- ⑧ THE RECESS FOR A W-BEAM CONNECTION, WHICH EXISTS ON SOME PARAPETS OF THIS TYPE, SHALL BE FILLED WITH A TREATED TIMBER BLOCKOUT. BLOCKOUT SIZE IS 1'-6" X 2'-0" X 3 1/2".
- ⑨ BOLT, NUT AND WASHERS NOT REQUIRED FOR THIS LOCATION WHEN RETROFITTING AN EXISTING PAPAPET AND THE HOLE IS EITHER ABOVE PARAPET OR WITHIN 4 INCHES OF THE EDGE OF PARAPET.

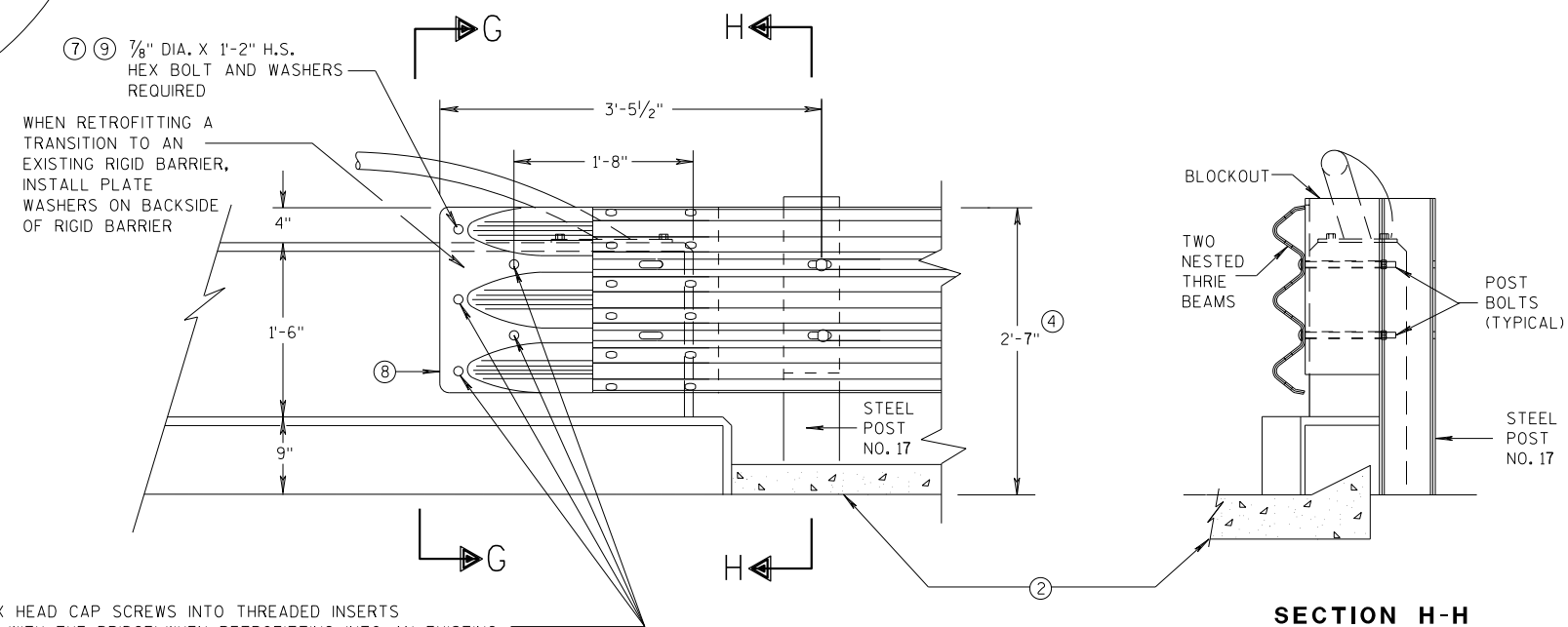


FRONT VIEW

W BEAM CONNECTION TO VERTICAL FACE PARAPET (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)



SECTION G-G



FRONT VIEW

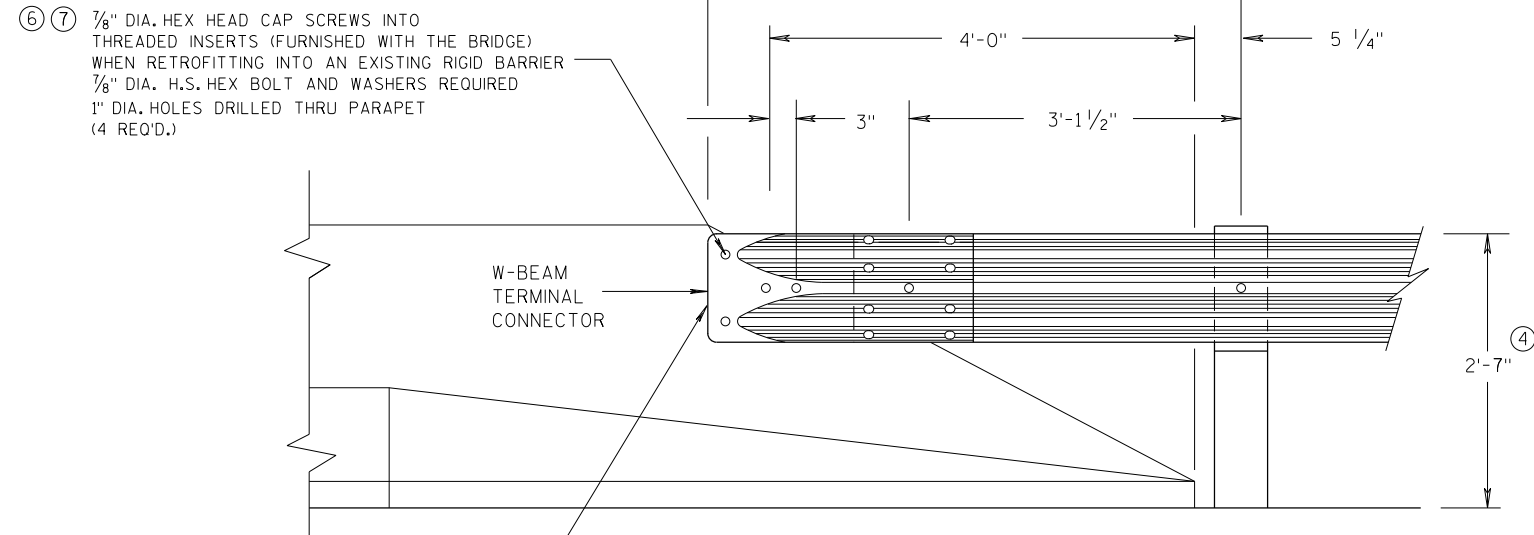
THRIE BEAM CONNECTION TO VERTICAL FACED PARAPETS

MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
07/2018 /S/ Rodney Taylor
DATE ROADWAY STANDARDS DEVELOPMENT
FHWA UNIT SUPERVISOR

ONE WAY
TRAFFIC



W-BEAM
TERMINAL
CONNECTOR

FRONT VIEW

**W BEAM CONNECTION TO
PARAPETS WITH SLOPED ENDS**

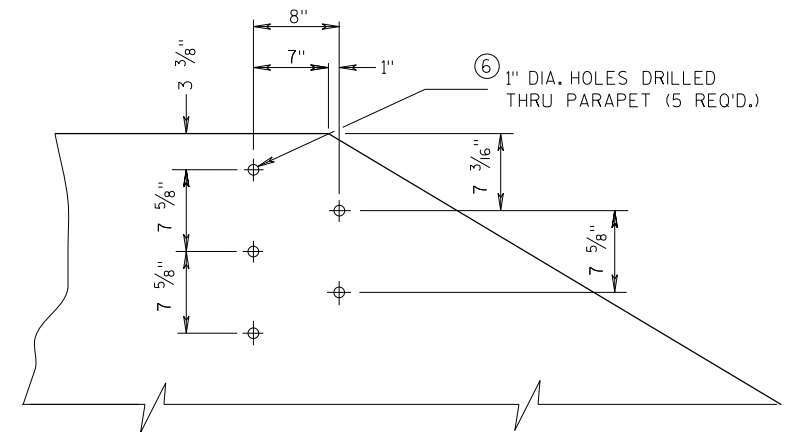
(USE ONLY AT TRAFFIC EXIT END OF ONE WAY BRIDGE)

WHEN RETROFITTING A TRANSITION
TO AN EXISTING RIGID BARRIER,
INSTALL PLATE WASHERS ON
BACKSIDE OF RIGID BARRIER.

⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO
THREADED INSERTS (FURNISHED WITH THE BRIDGE)
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED
1" DIA. HOLES DRILLED THRU PARAPET
(4 REQ'D.)

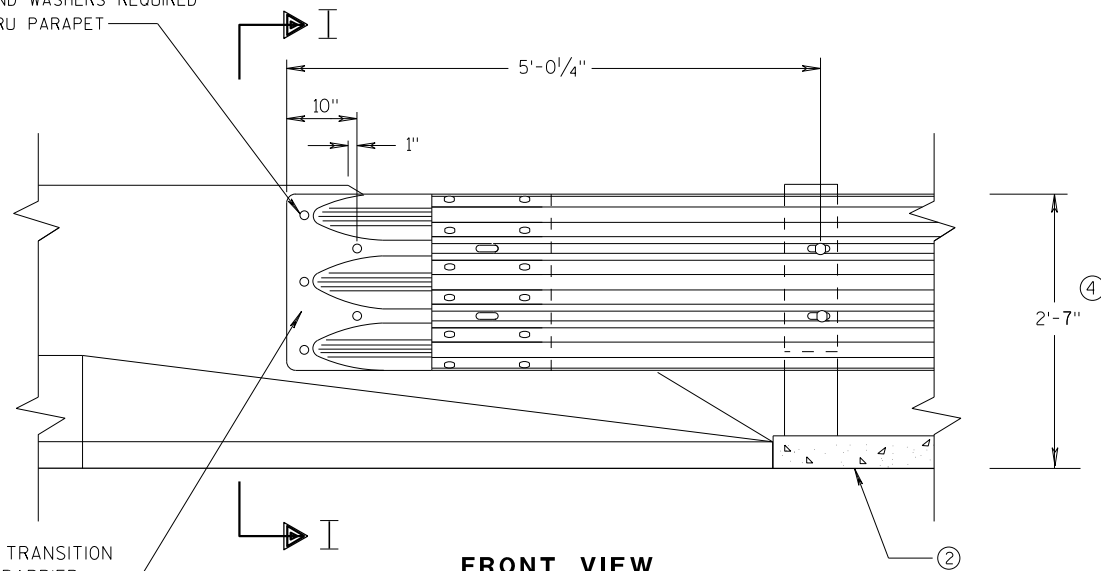
GENERAL NOTES

- ② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.
- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑥ DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.
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**DRILL HOLE LOCATION AND PATTERN
FOR THRIE BEAM CONNECTION**

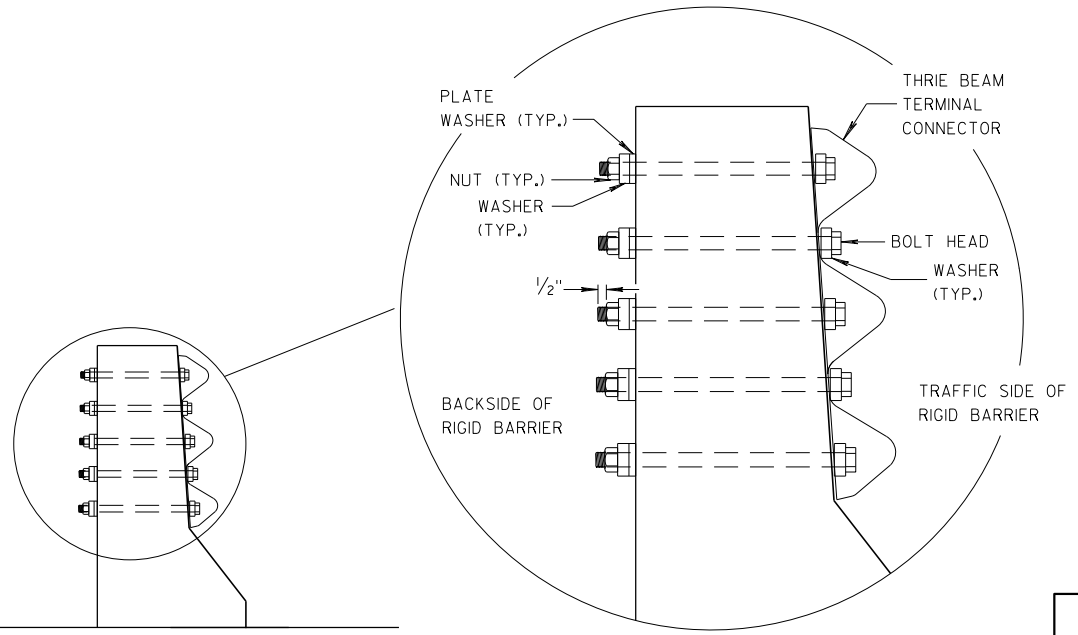
⑥ ⑦ 7/8" DIA. HEX HEAD CAP SCREWS INTO
THREADED INSERTS (FURNISHED WITH THE BRIDGE)
WHEN RETROFITTING INTO AN EXISTING RIGID BARRIER
7/8" DIA. H.S. HEX BOLT AND WASHERS REQUIRED
1" DIA. HOLES DRILLED THRU PARAPET
(5 REQ'D.)



FRONT VIEW

**THRIE BEAM CONNECTION TO BRIDGE
PARAPETS WITH SLOPED ENDS**

WHEN RETROFITTING A TRANSITION
TO AN EXISTING RIGID BARRIER,
INSTALL PLATE WASHERS ON
BACKSIDE OF RIGID BARRIER.

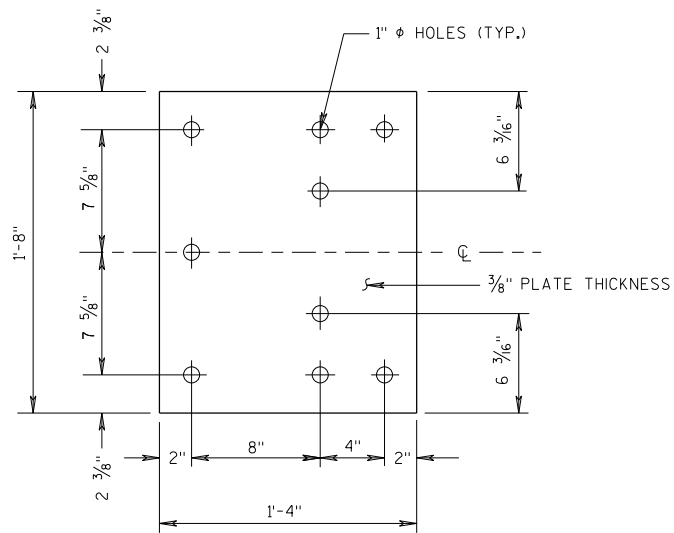


SECTION I-I

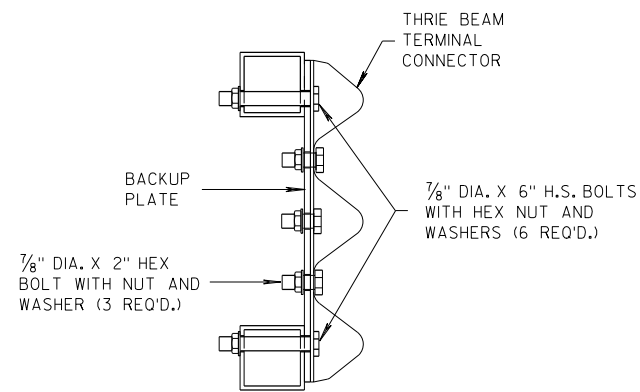
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

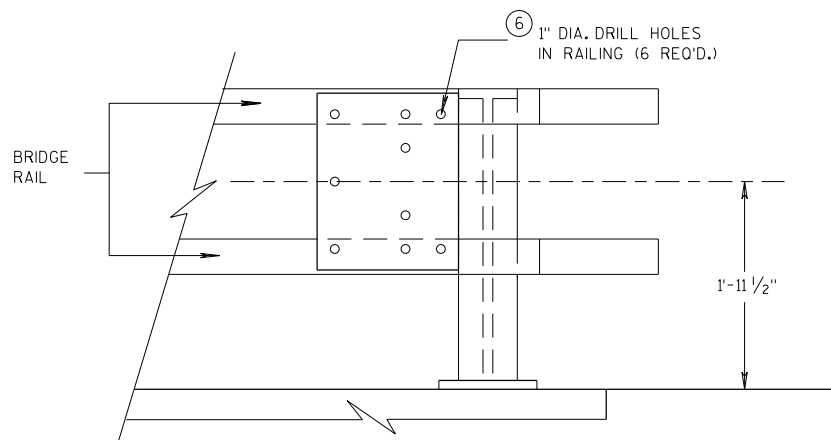
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FHWA



BACK-UP PLATE DETAIL



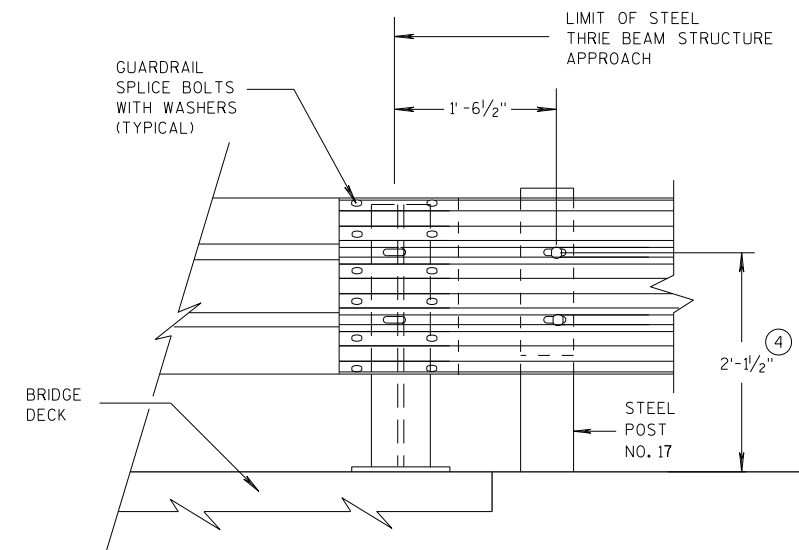
SECTION J-J



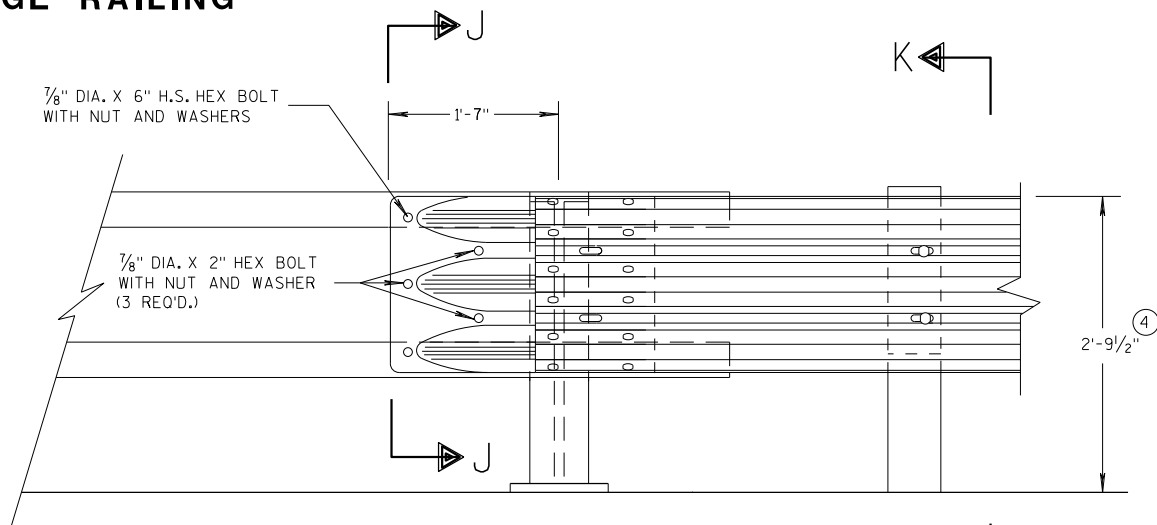
BACK-UP PLATE MOUNTING ONTO BRIDGE RAILING

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1'$.
- ⑥ DRILLING HOLES THROUGH THE PAPER, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

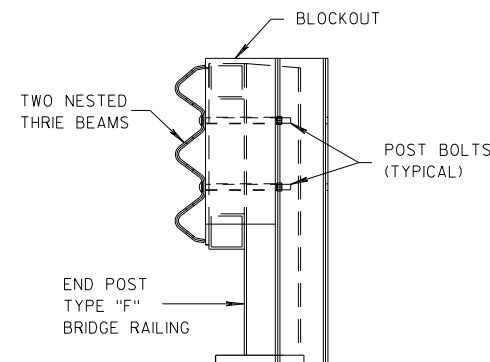


**FRONT VIEW
THRIE BEAM CONNECTION TO
STEEL RAILING TYPE "W"**



FRONT VIEW

**THRIE BEAM CONNECTION TO
TUBULAR RAILING TYPE "F"**



SECTION K-K

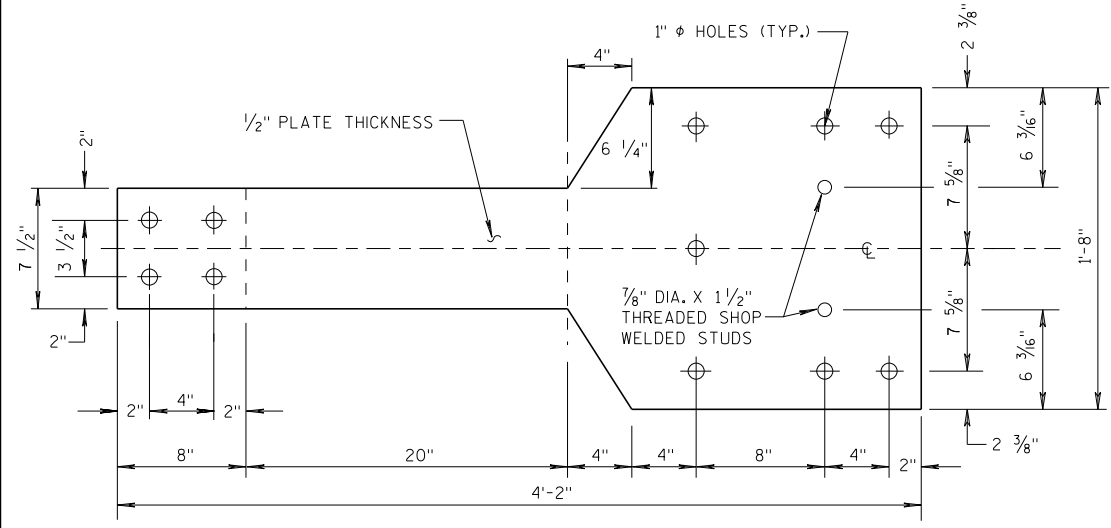
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

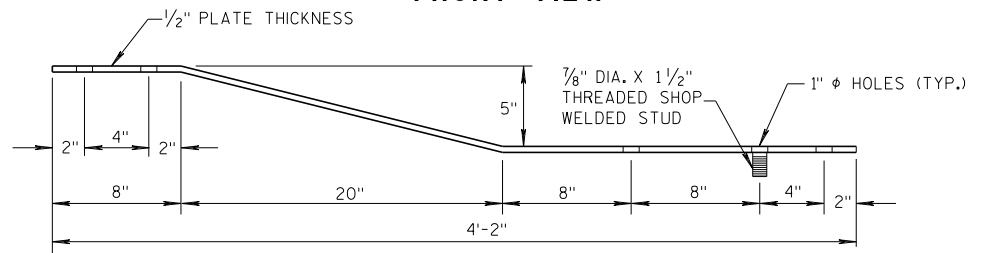
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FHWA UNIT SUPERVISOR

GENERAL NOTES

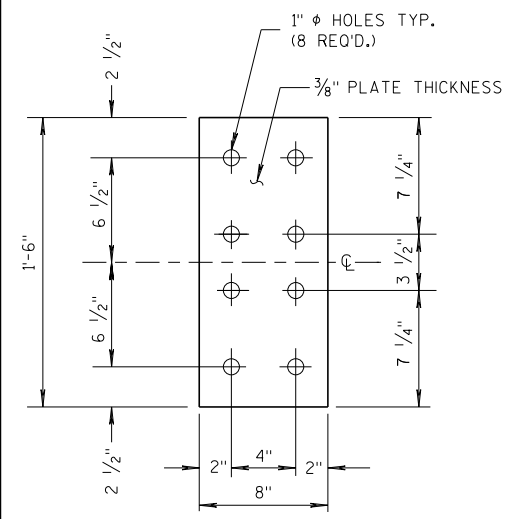
(4) TOLERANCE FOR TOP OF W-BEAM RAIL IS ± 1".



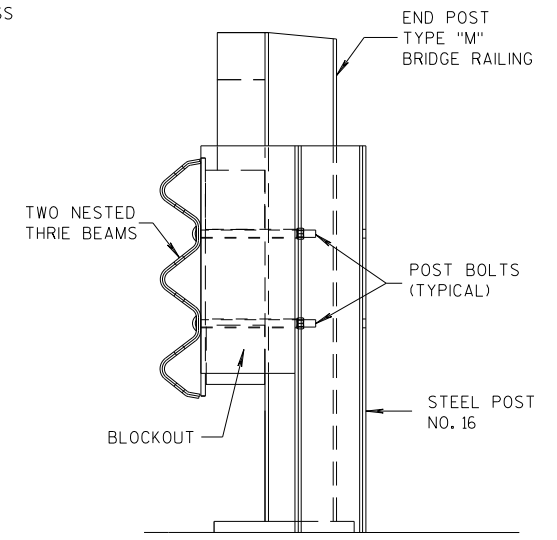
FRONT VIEW



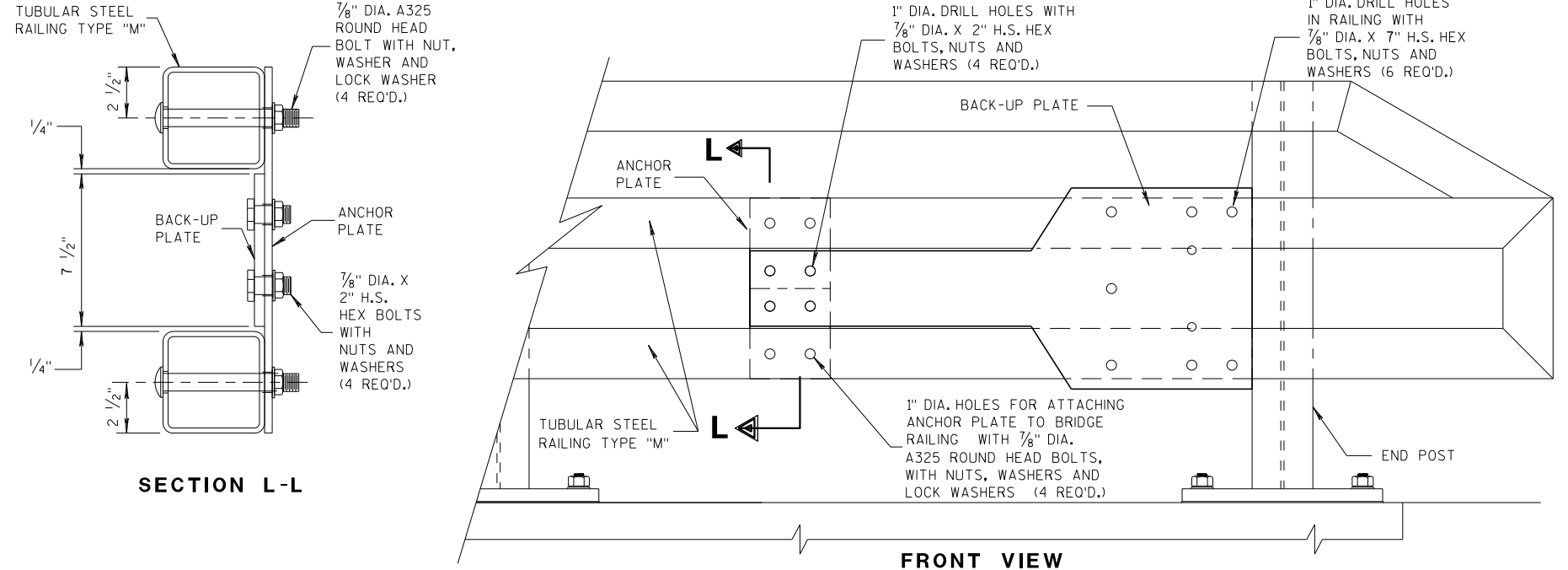
**PLAN VIEW
BACK-UP PLATE DETAIL, TYPE "M"**



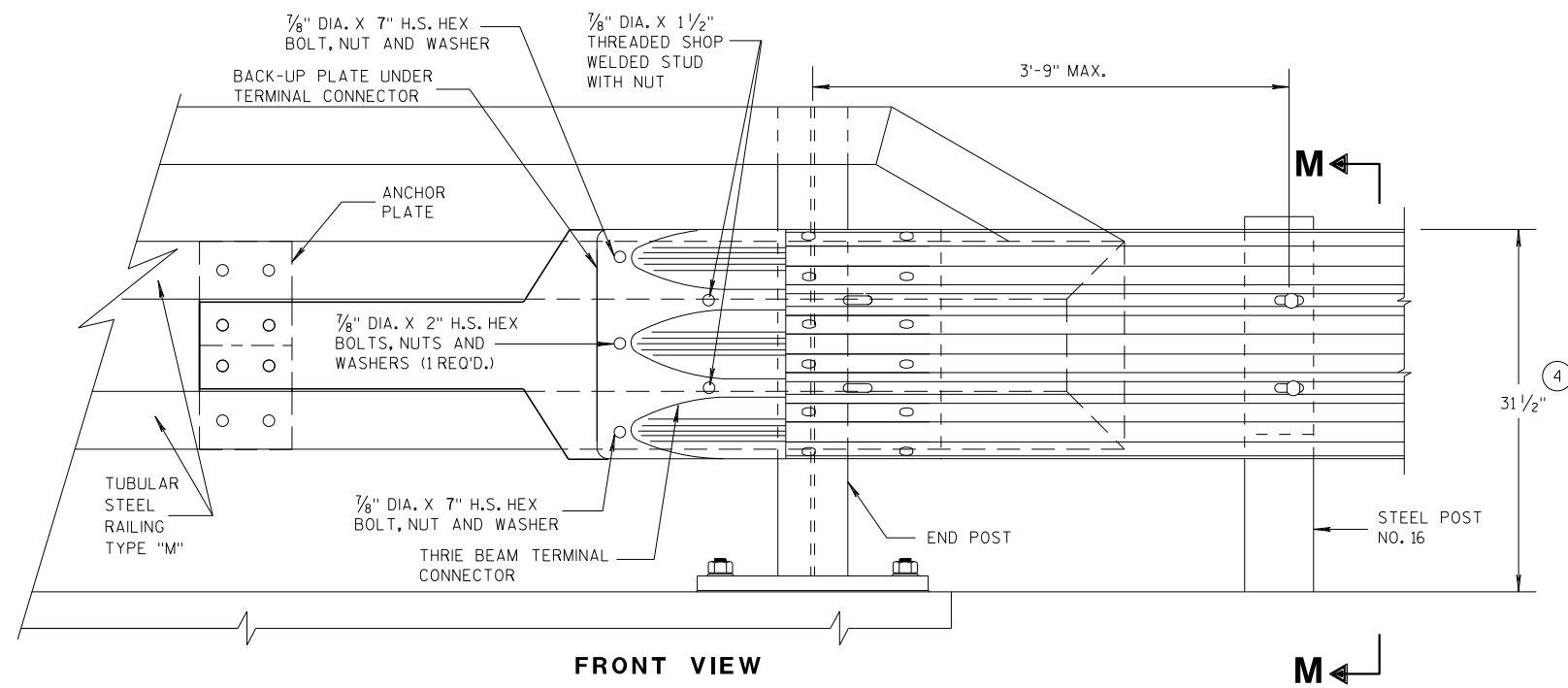
**FRONT VIEW
ANCHOR PLATE DETAIL, TYPE "M"**



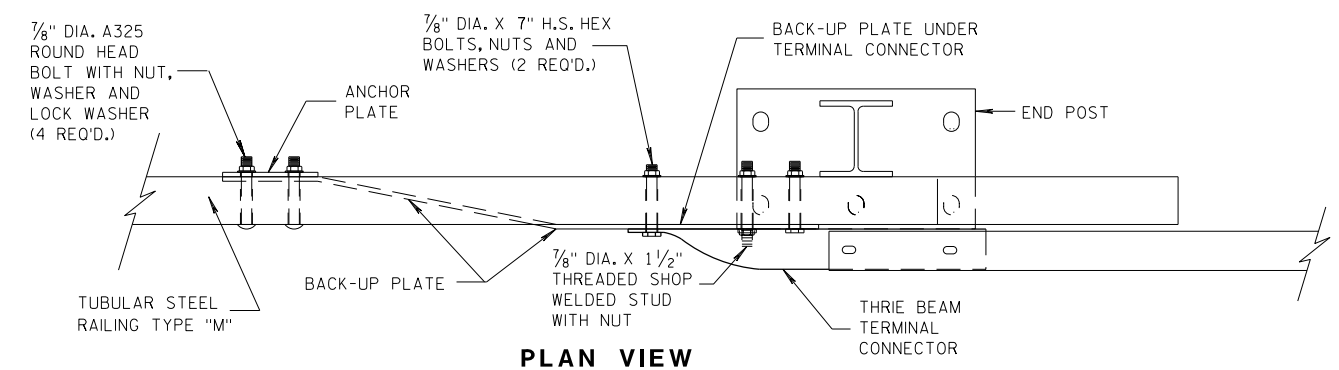
SECTION M-M



ANCHOR AND BACK-UP PLATE MOUNTING TO BRIDGE RAILING, TYPE "M"



FRONT VIEW



PLAN VIEW

THRIE BEAM CONNECTION TO TUBULAR RAILING, TYPE "M"

**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

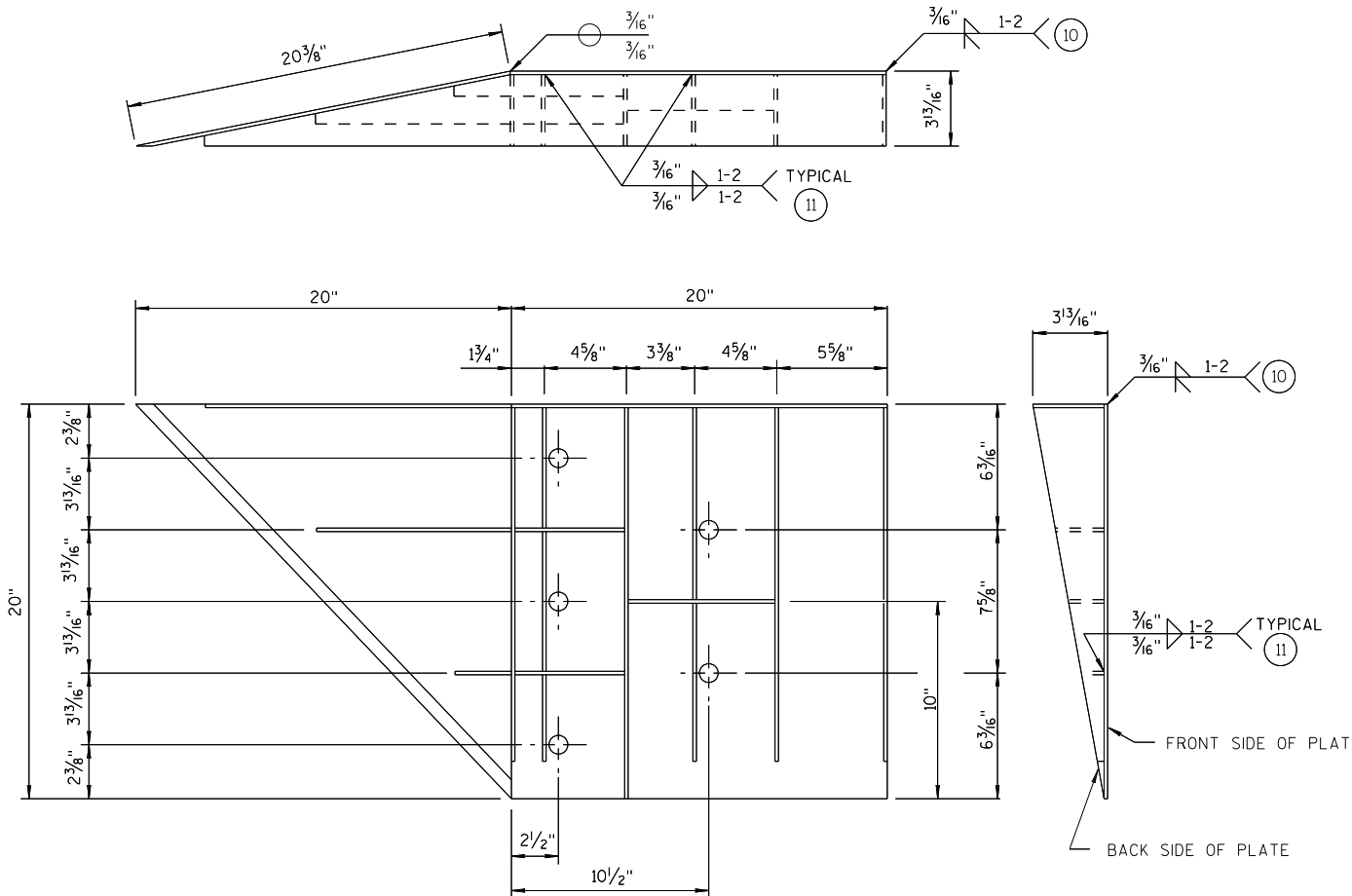
STATE OF WISCONSIN
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DATE 07/2018
DATE /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA

GENERAL NOTES

- COVER PLATE PANELS ARE 3/16" THICK.
- ALL STIFFENERS ARE 1/4" THICK.
- CONNECTOR PLATE SHALL BE FABRICATED FROM ASTM GRADE A36 STEEL AND GALVANIZED.
- FOR GALVANIZED REQUIREMENTS, SEE SECTION 614 OF THE STANDARD SPECIFICATIONS.
- ALL HOLE DIAMETERS SHALL BE 1".
- FOR OPPOSITE SIDE INSTALLATION MIRROR DRAWINGS.

- (10) STIFFENERS LOCATED AT THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS:
SINGLE BEVEL GROOVE WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACED AT 2" ON INTERNAL SIDES.
- (11) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATE SHALL BE WELDED AS FOLLOWS:
3/16" FILLET WELD BY 1" LONG SPACED AT 2".



WELDING INSTRUCTION
(VIEWED FROM BACK SIDE OF PLATE)

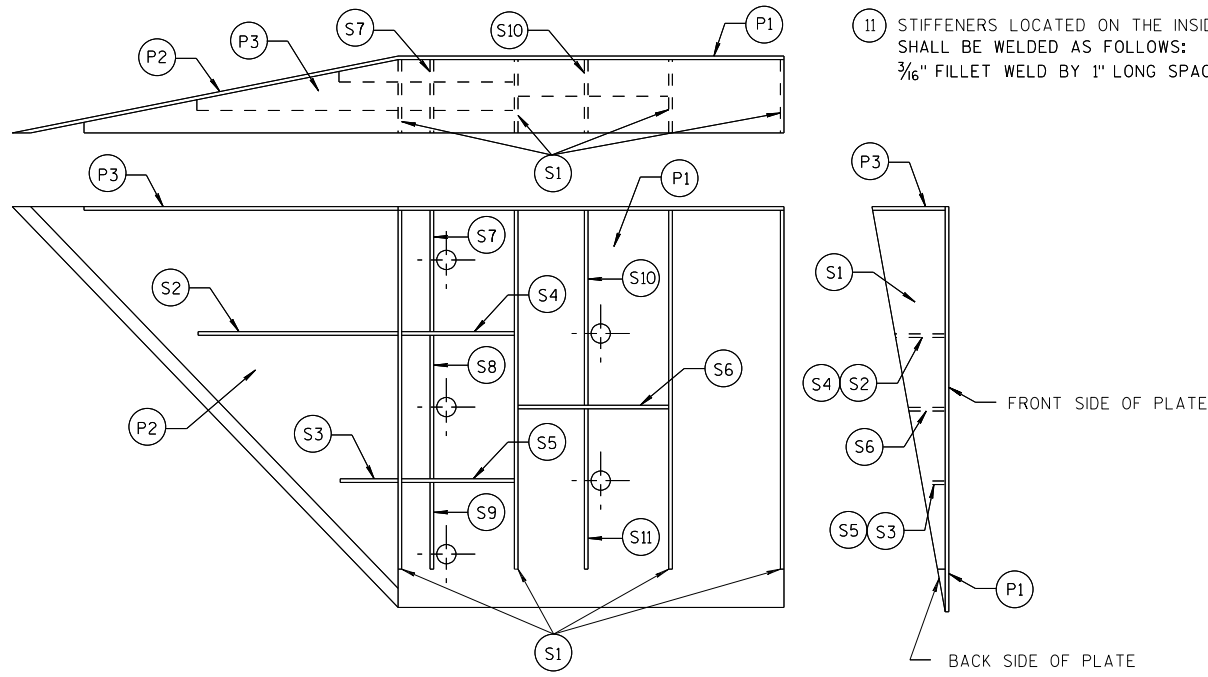


PLATE AND STIFFENER IDENTIFICATION
(VIEWED FROM BACK SIDE OF PLATE)

CONNECTOR PLATE DIMENSION (PER ASSEMBLY)				
PLATE	QUANTITY	SHAPE	SIZE (A x B x C x D)	THICKNESS
P1	1		20" x 20"	3/16"
P2	1		20" x 20" x 28 3/16"	3/16"
P3	1		39" x 3 5/8" x 20" x 19 5/16"	3/16"
S1	4		18 7/16" x 3 5/8" x 18 3/4"	1/4"
S2	1		10 1/4" x 2 1/16" x 10 3/8" x 1/2"	1/4"
S3	1		3" x 1 1/16" x 3 3/8" x 1/2"	1/4"
S4	1		6 1/8" x 2 7/16"	1/4"
S5	1		6 1/8" x 1 1/16"	1/4"
S6	1		7 3/4" x 1 3/4"	1/4"
S7	1		2 3/16" x 6" x 3 5/8" x 5 7/8"	1/4"
S8	1		1 5/32" x 7 1/2" x 2 1/2" x 7 3/8"	1/4"
S9	1		6 1/16" x 6 3/16" x 1 3/32"	1/4"
S10	1		1 7/8" x 9 7/8" x 3 3/8" x 9 11/16"	1/4"
S11	1		8 1/2" x 8 3/4" x 1 3/16"	1/4"

SINGLE SLOPE CONNECTION PLATE

**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

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7/2018
DATE

/S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR

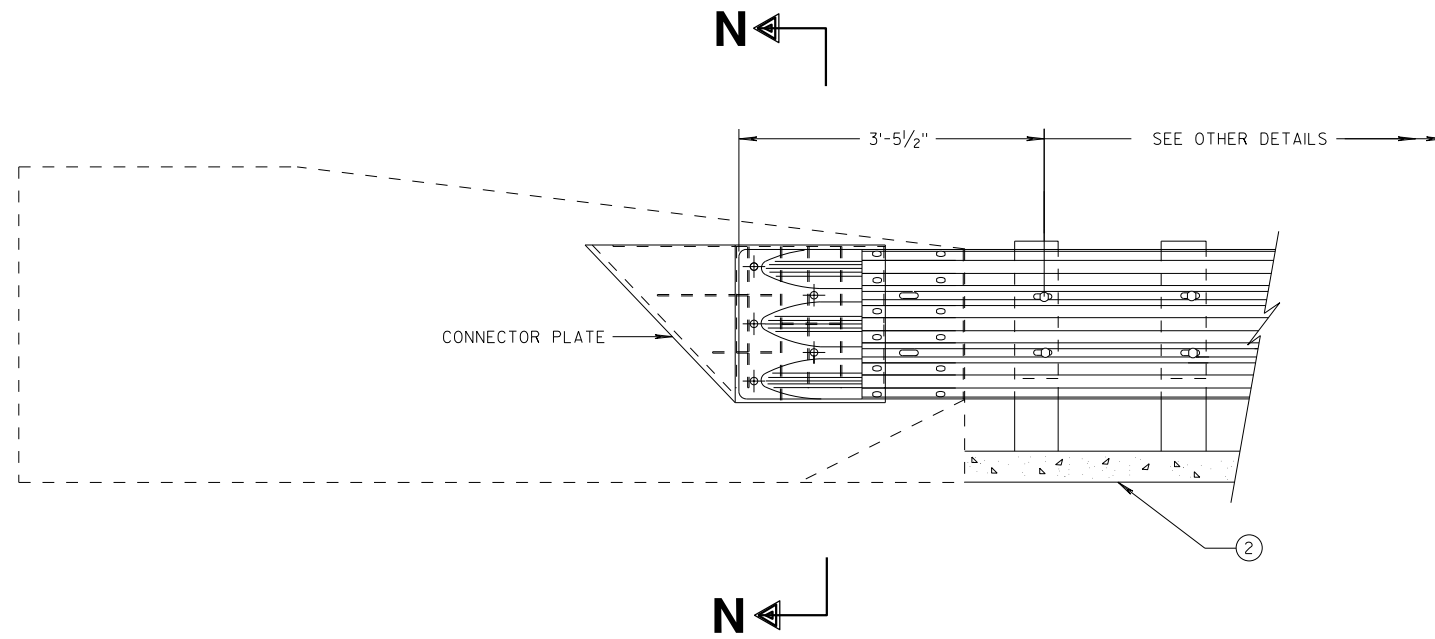
FHWA

GENERAL NOTES

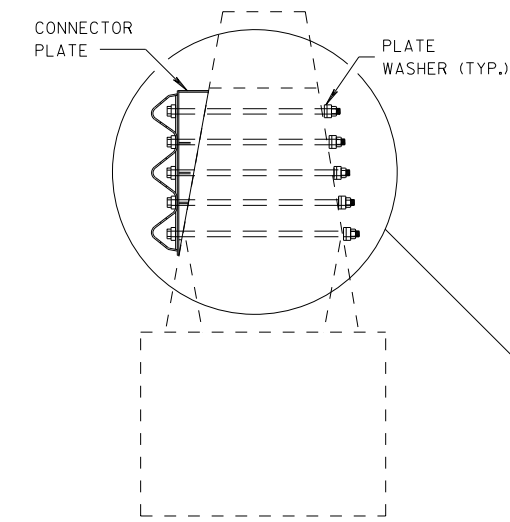
CONNECTOR PLATE, DRILLING BOLT HOLES THROUGH THE PARAPET, BOLTS, NUTS, WASHERS AND REPAIRING DAMAGED CONCRETE ARE INCIDENTAL TO THE CONTRACT.

② OPTIONAL CURB AND GUTTER OR DRAINAGE FEATURE SEE PLAN FOR INFORMATION.

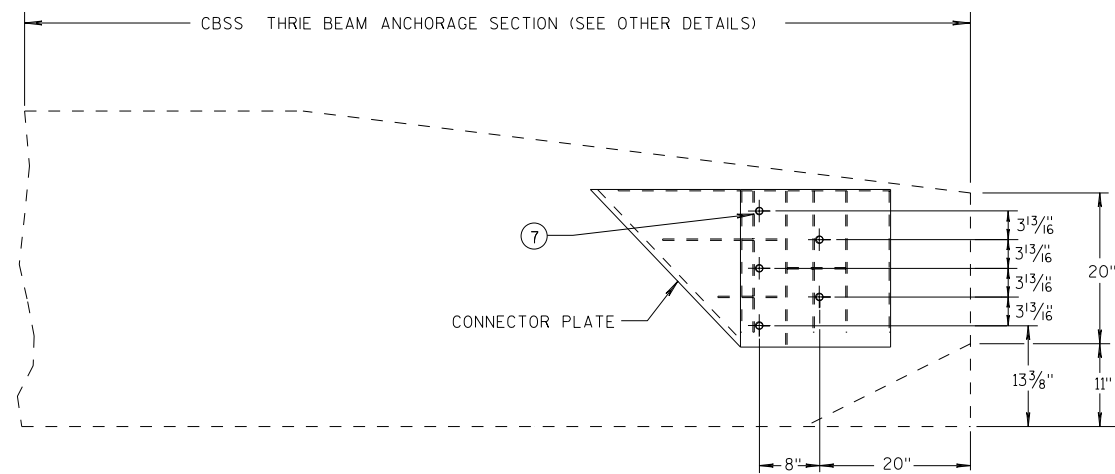
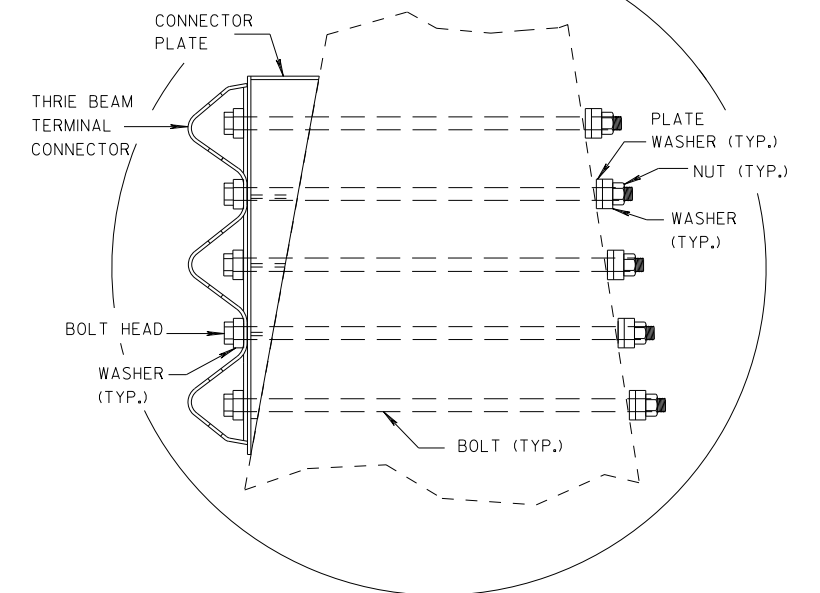
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THRIE BEAM CONNECTION TO SINGLE SLOPE BARRIER



SECTION N-N

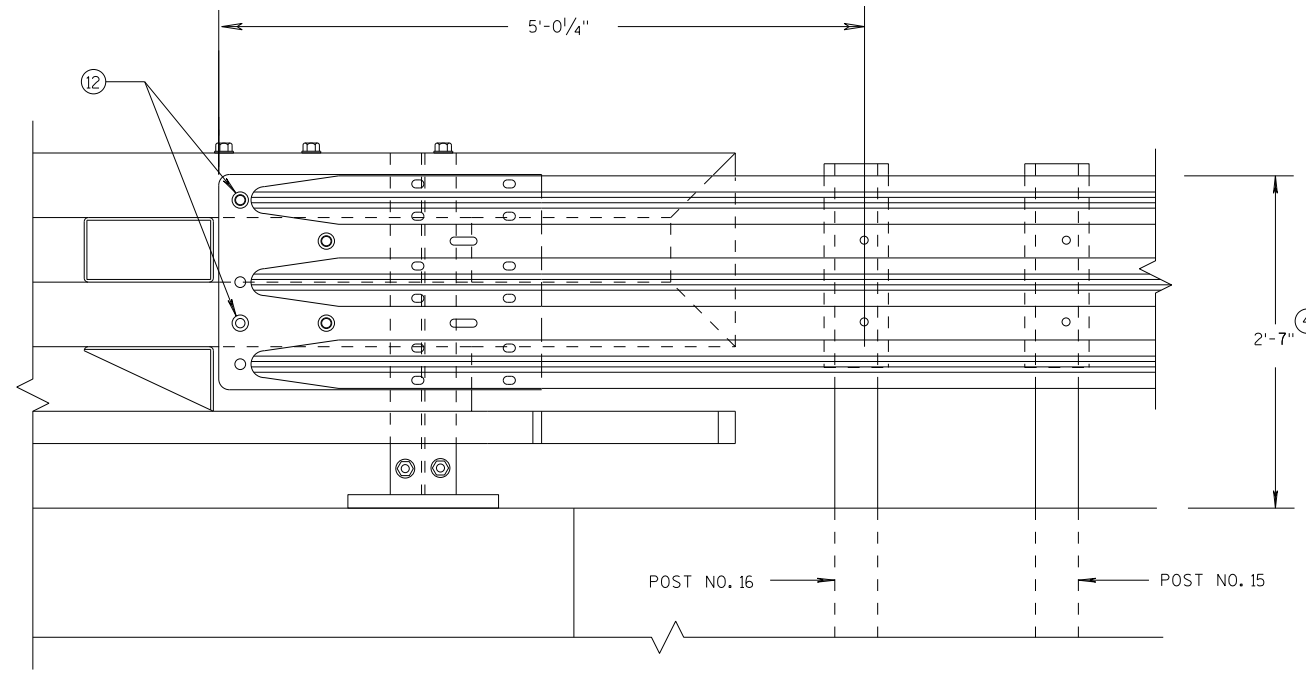


SINGLE SLOPE CONNECTION PLATE PLACEMENT

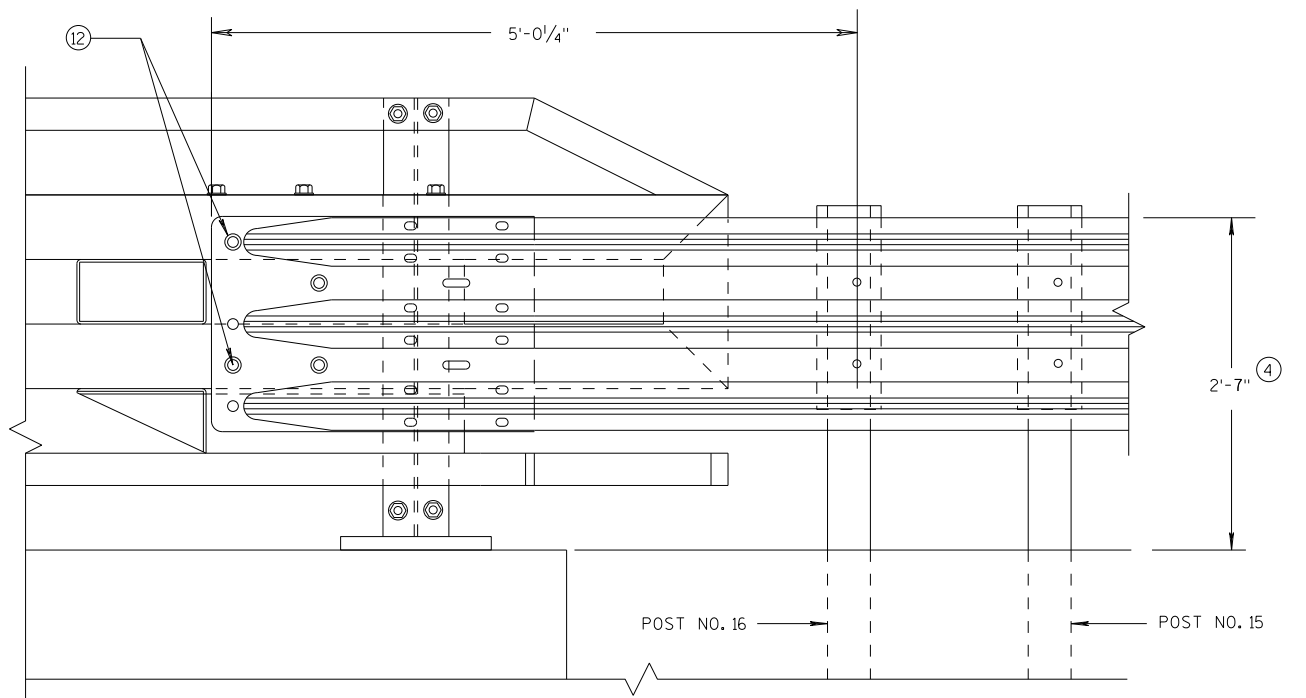
**MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE 7/2018 /S/ Rodney Taylor
ROADWAY STANDARDS DEVELOPMENT
UNIT SUPERVISOR
FHWA



ELEVATION OF DETAIL AT NY3 END POST
THRIE BEAM RAIL ATTACHMENT



ELEVATION OF DETAIL AT NY4 END POST
THRIE BEAM RAIL ATTACHMENT

GENERAL NOTES

- (4) TOLERANCE FOR TOP OF BEAM IS ± 1".
- (12) BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND 1/2-INCH BEYOND NUT.

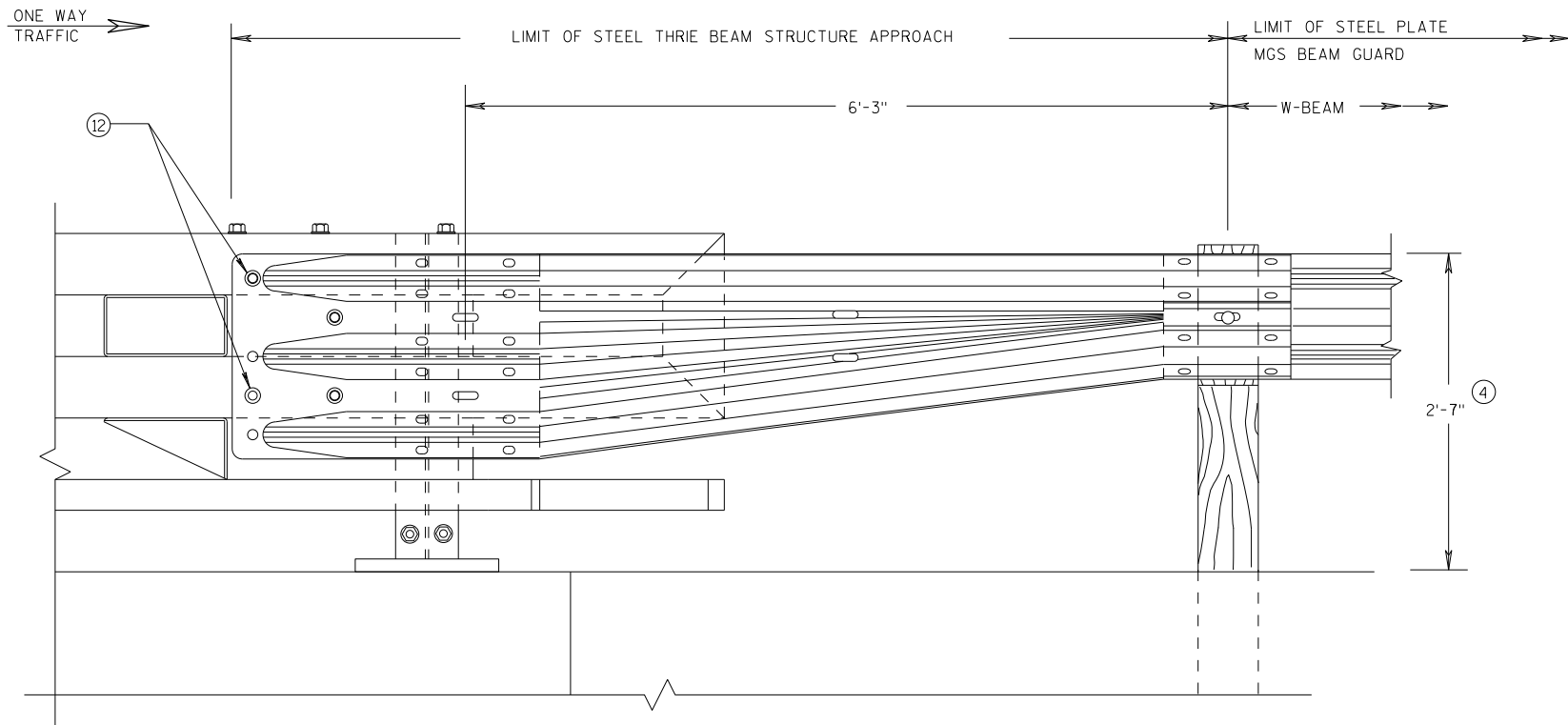
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S.D.D. 14 B 45-5k

S.D.D. 14 B 45-5k

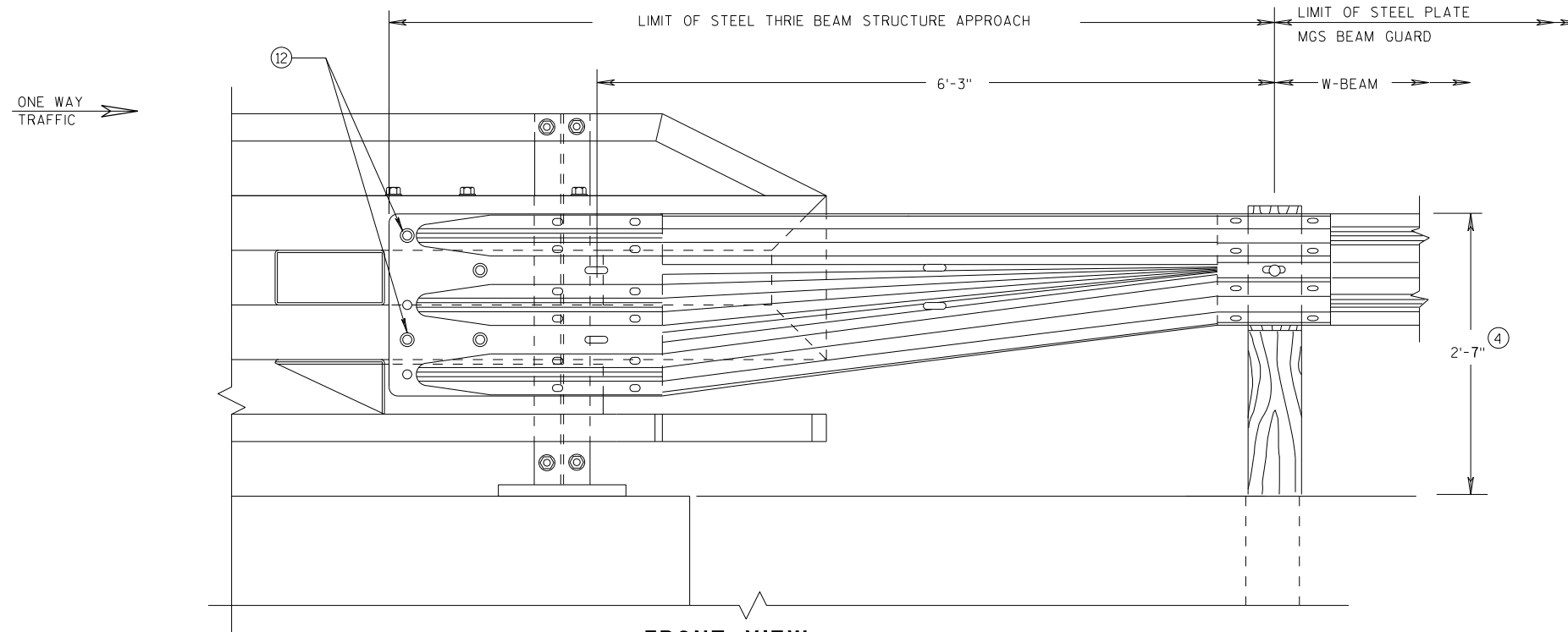
MIDWEST GUARDRAIL SYSTEM THRIE BEAM TRANSITION (MGS)	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT UNIT SUPERVISOR
FHWA	



FRONT VIEW
W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY3"
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

GENERAL NOTES

- ④ TOLERANCE FOR TOP OF BEAM IS $\pm 1"$.
- ⑫ BOLTS MAY BE A325 BOLTS OR A449 BOLTS. BOLT LENGTH AND THREADING LENGTH ARE TO ALLOW FOR A TIGHT CONNECTION BETWEEN RIGID BARRIER AND THRIE BEAM CONNECTION PLATE. CONTRACTOR IS TO FIELD VERIFY BOLT LENGTH AND THREAD LENGTH. ONE ROUND WASHER REQUIRED BETWEEN BOLT HEAD AND THRIE BEAM CONNECTOR PLATE. ON BACKSIDE OF PARAPET ONE ROUND WASHER, AND NUT REQUIRED. BOLT THREAD IS TO EXTEND $\frac{1}{2}$ -INCH BEYOND NUT.

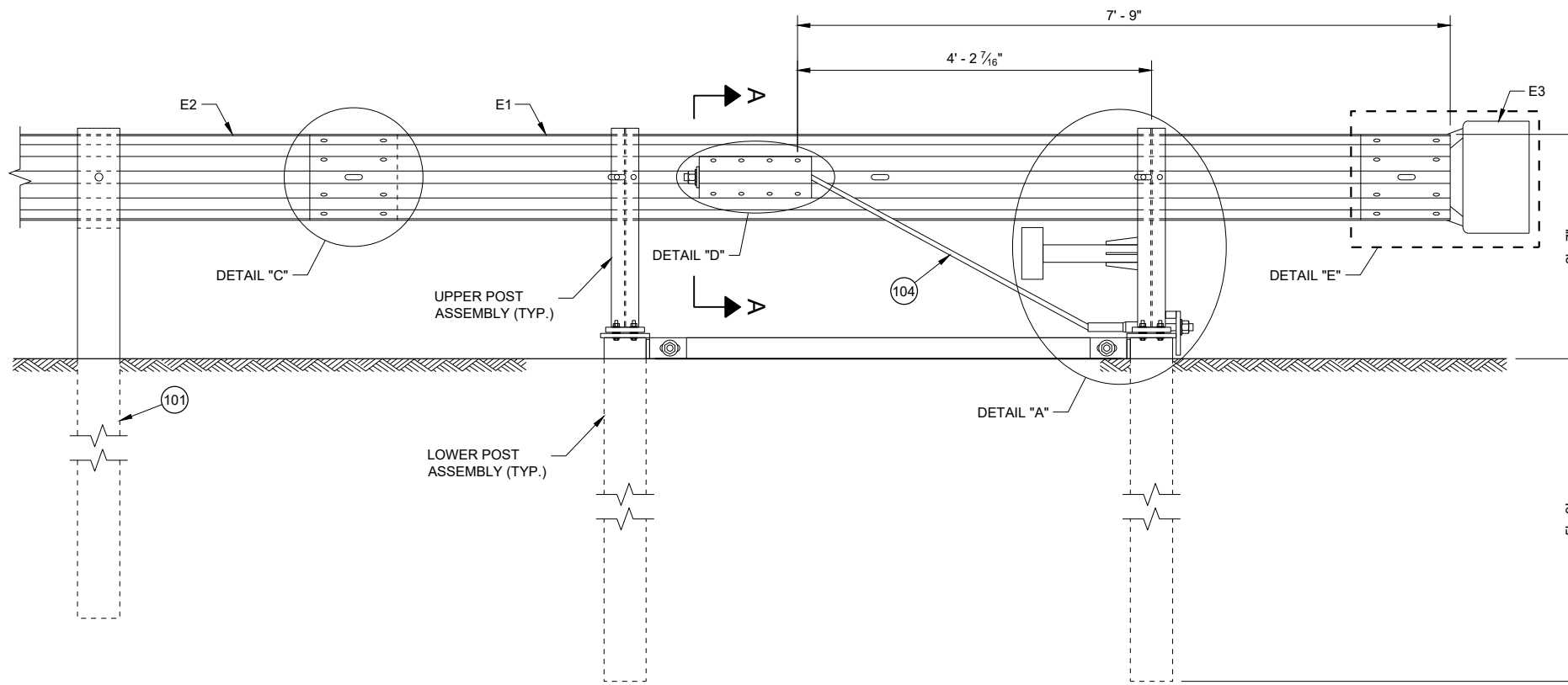


FRONT VIEW
W BEAM TRANSITION AND
CONNECTION TO BRIDGE RAILING TYPE "NY4"
 (USE ONLY ON THE TRAFFIC EXIT END OF ONE WAY BRIDGES)

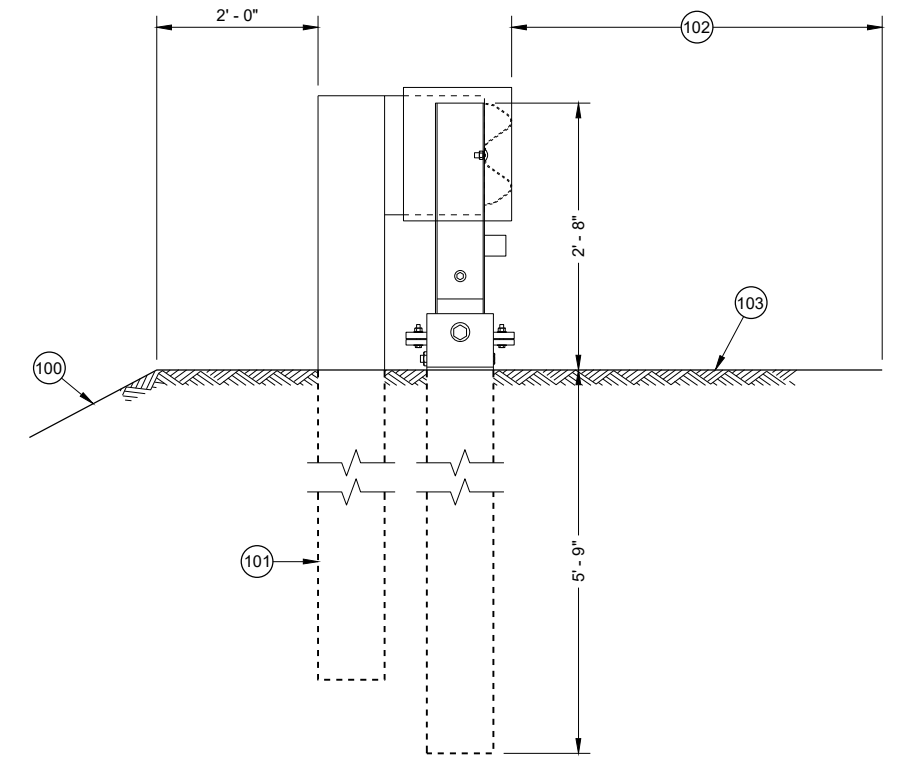
MIDWEST GUARDRAIL SYSTEM
THRIE BEAM TRANSITION (MGS)

STATE OF WISCONSIN
 DEPARTMENT OF TRANSPORTATION

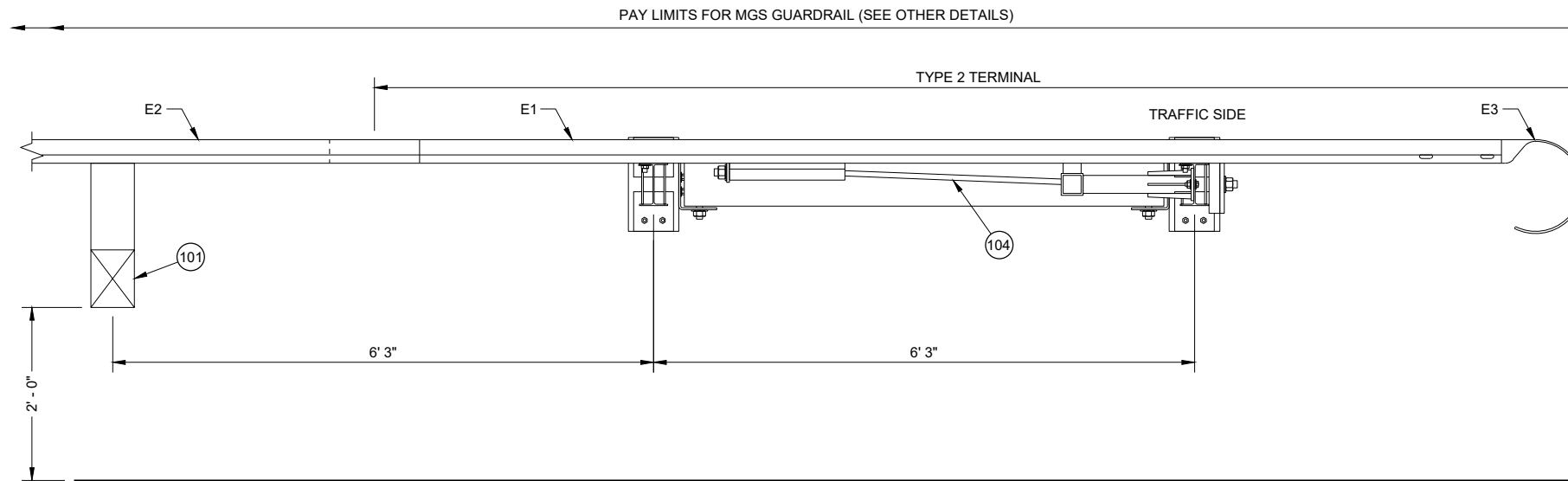
APPROVED
 DATE 7/2018 /S/ Rodney Taylor
 ROADWAY STANDARDS DEVELOPMENT
 UNIT SUPERVISOR
 FHWA



**BACK VIEW
TYPE 2 TERMINAL**



**SIDE VIEW
TYPE 2 TERMINAL**



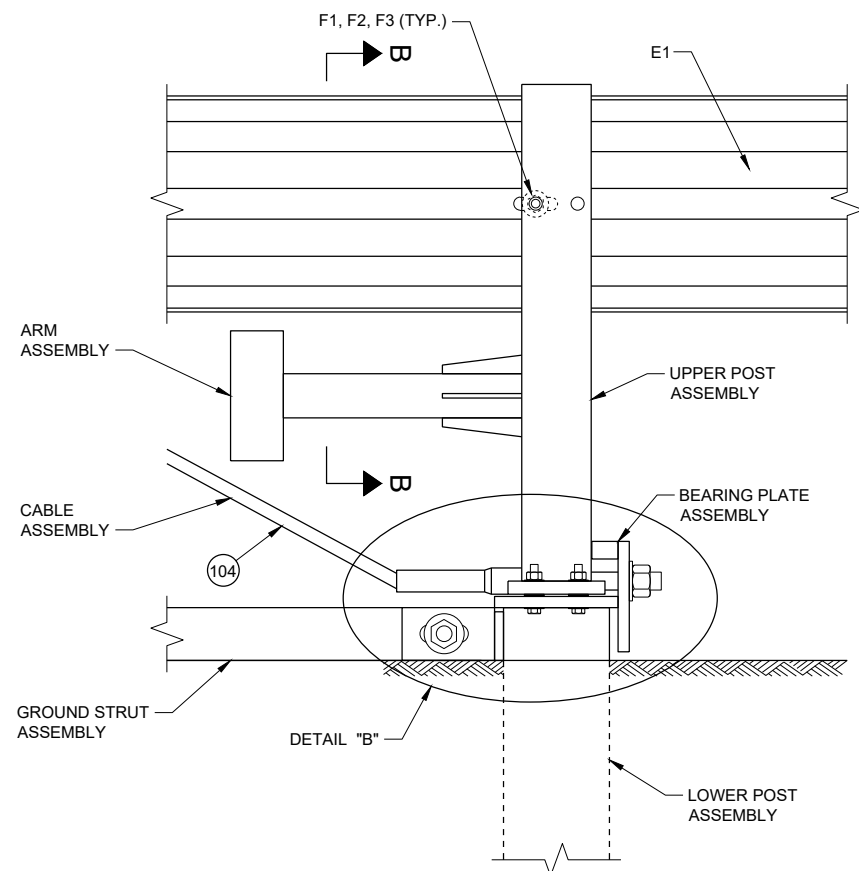
**TOP VIEW
TYPE 2 TERMINAL**

GENERAL NOTES

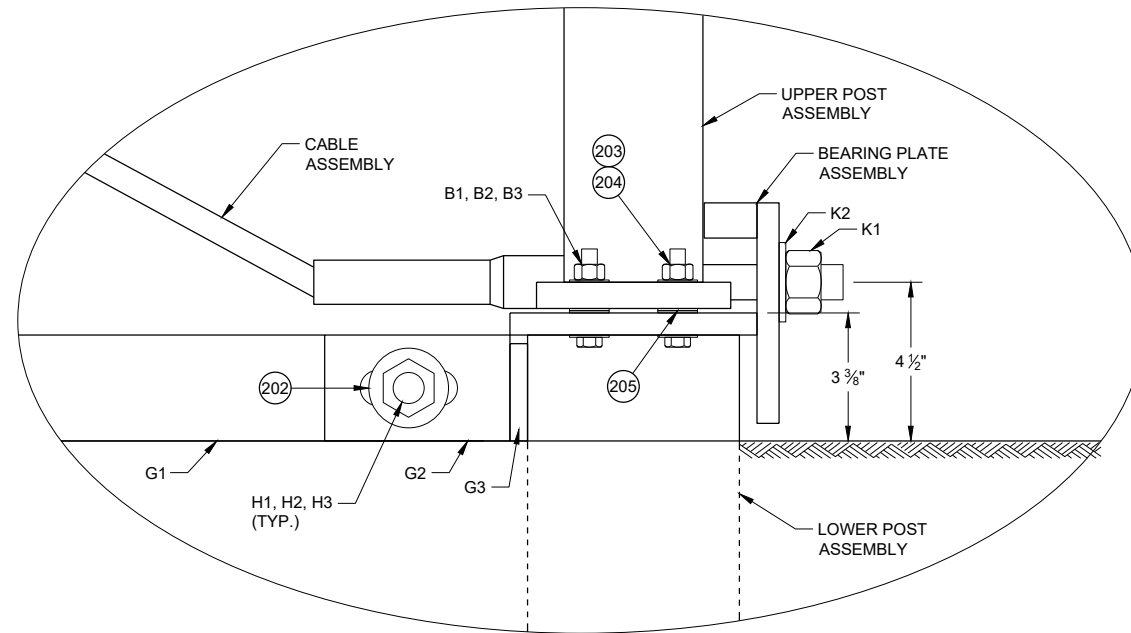
- (100) MAXIMUM SLOPE IS 2.5:1.
- (101) SEE SDD 14B42 FOR MORE INFORMATION.
- (102) SHOULDER
- (103) MAXIMUM SLOPE IS 10:1.
- (104) AFTER ASSEMBLY, CABLE IS TO BE TIGHTENED WITHOUT TWISTING THE CABLE.

**MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL**

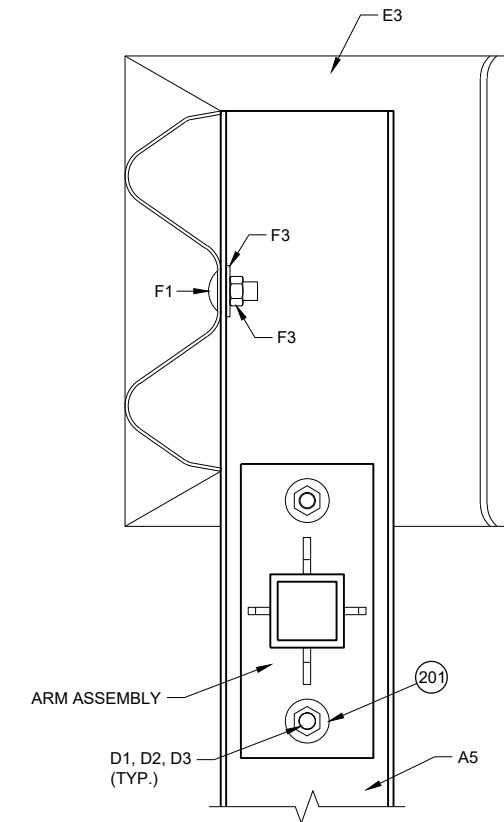
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



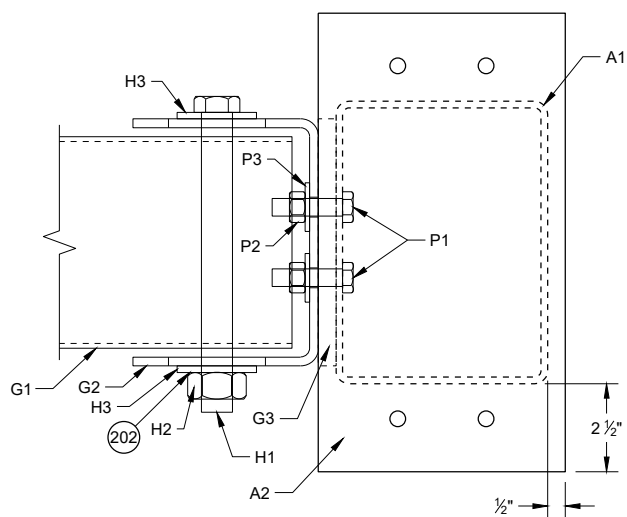
DETAIL "A"



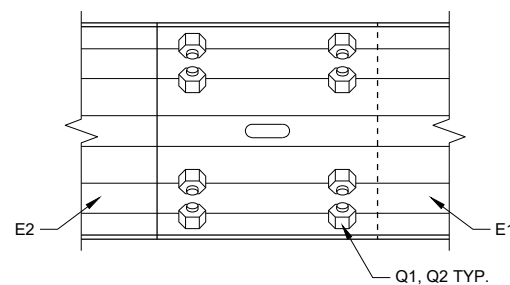
DETAIL "B"



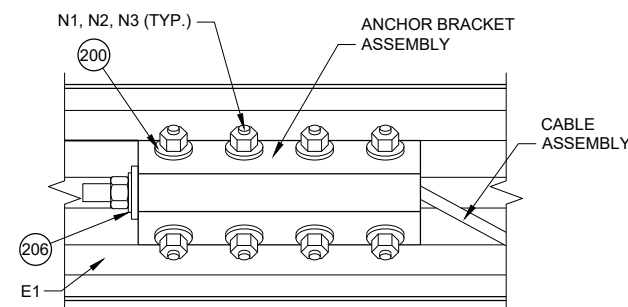
SECTION B - B



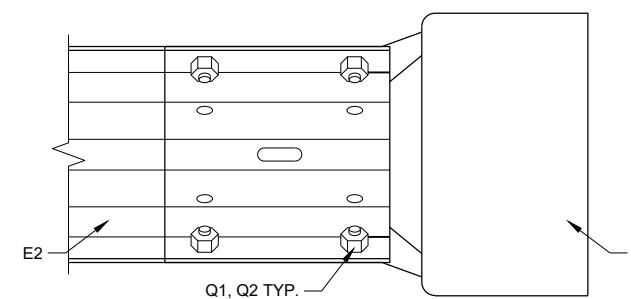
**TOP VIEW
GROUND STRUT
CONNECTION DETAIL**



DETAIL "C"



DETAIL "D"

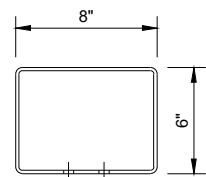


DETAIL "E"

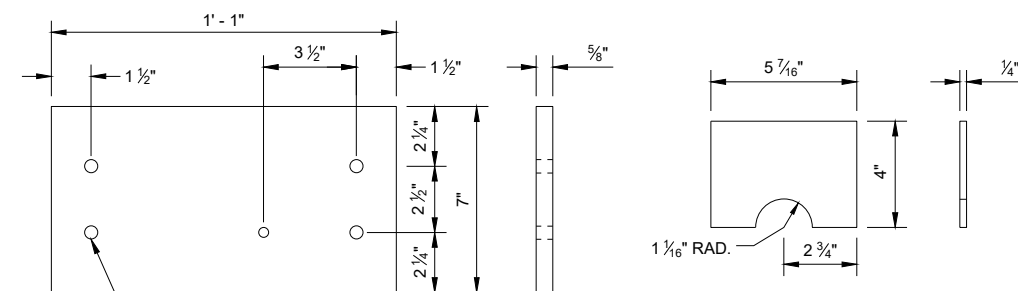
GENERAL NOTES

- 200 INSTALL ONE WASHER UNDER BOLT HEAD AND RAIL AND ON WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.
- 201 INSTALL ONE WASHER UNDER BOLT HEAD AND UPPER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND ARM PLATE.
- 202 INSTALL ONE WASHER UNDER BOLT HEAD AND GROUND STRUT CONNECTOR AND ONE WASHER BETWEEN NUT AND GROUND STRUT CONNECTOR.
- 203 INSTALL ONE WASHER UNDER BOLT HEAD AND LOWER POST ASSEMBLY AND ONE WASHER BETWEEN NUT AND UPPER POST ASSEMBLY.
- 204 TORQUE VALUE IS BETWEEN 60 - 75 FT-LB.
- 205 TWO WASHERS BETWEEN UPPER AND LOWER POST ASSEMBLY.
- 206 INSTALL ONE WASHER BETWEEN NUT AND ANCHOR BRACKET ASSEMBLY.

<p>MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL</p>
<p>STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION</p>

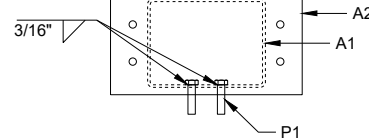


TOP VIEW

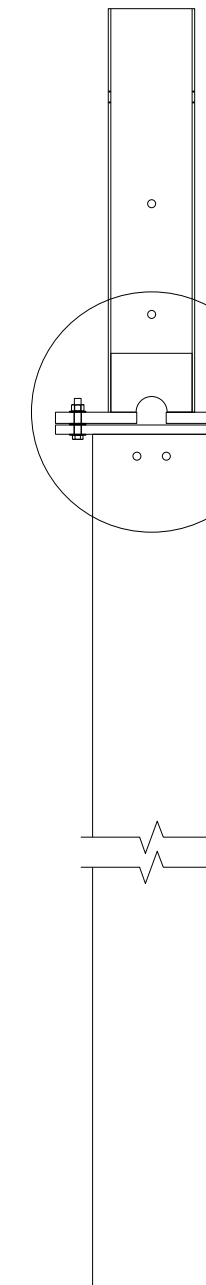
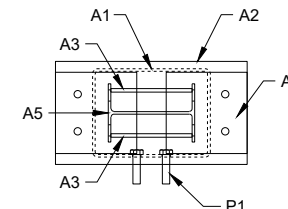


LOWER PLATE (A2)

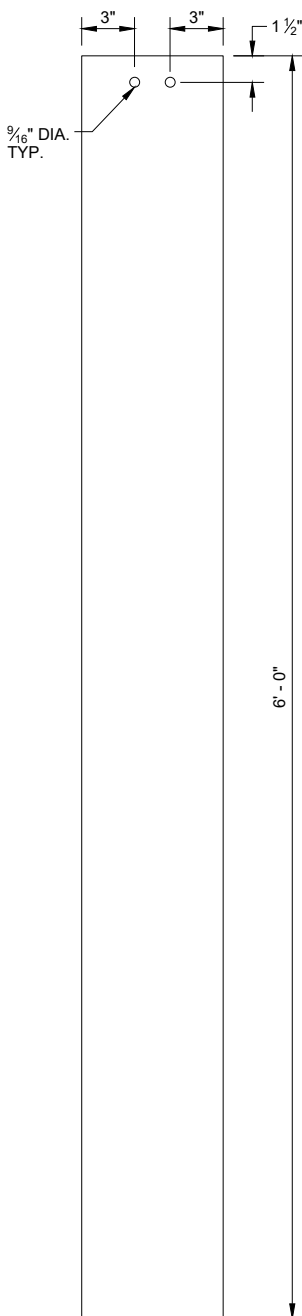
POST GUSSET (A3)



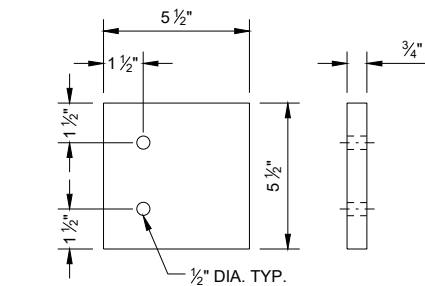
PLAN VIEW



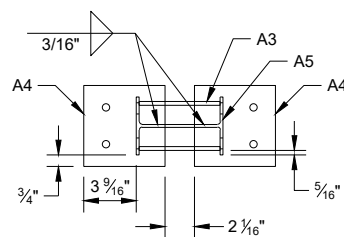
ASSEMBLED POST



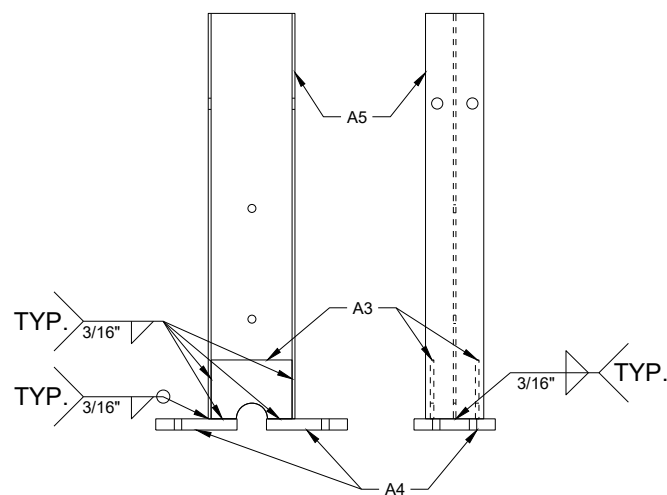
FOUNDATION TUBE (A1)



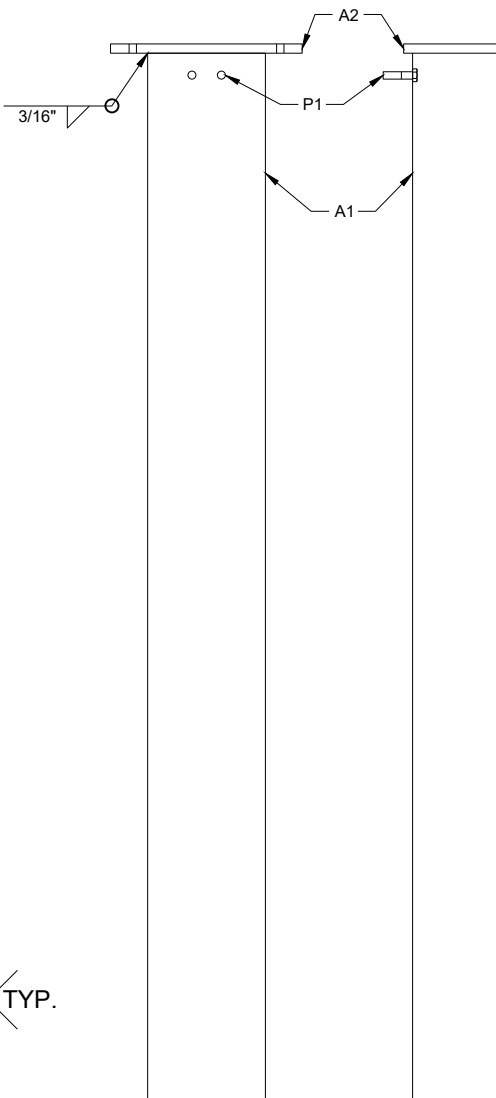
UPPER PLATE (A4)



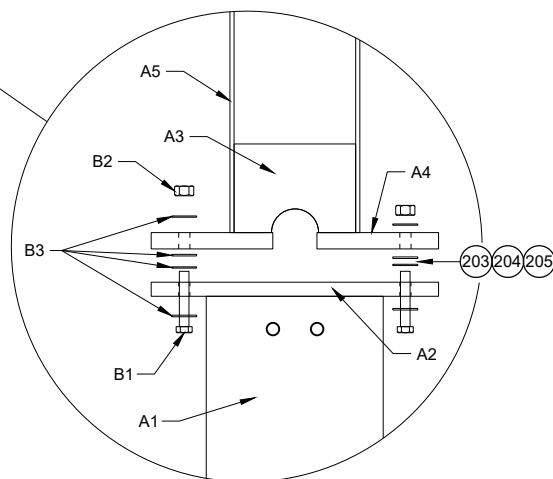
PLAN VIEW



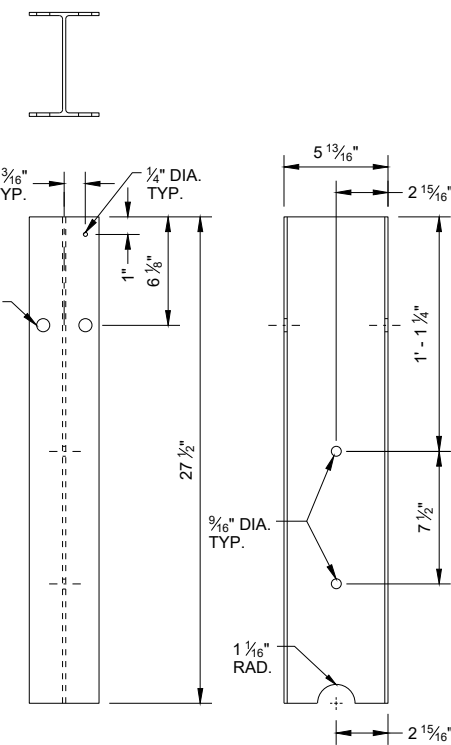
UPPER POST ASSEMBLY



LOWER POST ASSEMBLY



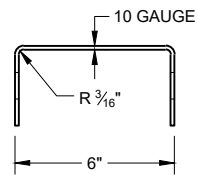
POST CONNECTION DETAIL



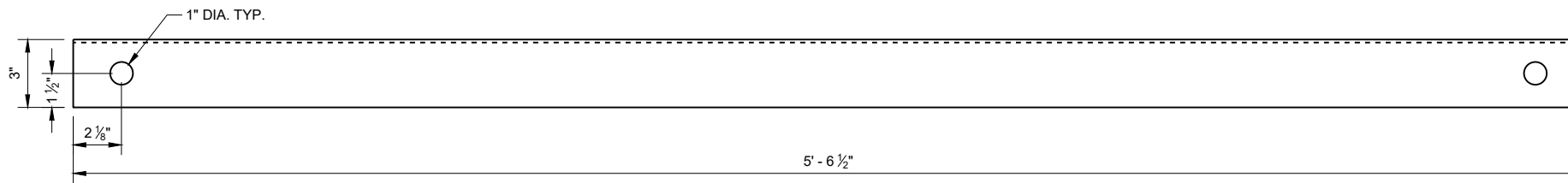
TYPE 2 POST (A5)

**MIDWEST GUARDRAIL SYSTEM (MGS)
TYPE 2 TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

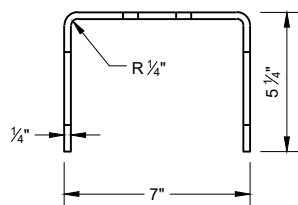


SIDE VIEW

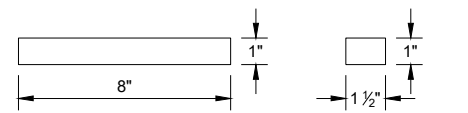


FRONT VIEW

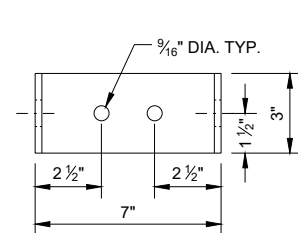
GROUND STRUT CHANNEL (G1)



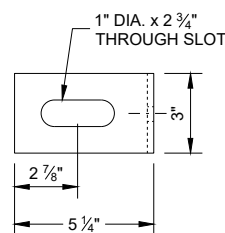
TOP VIEW



BEARING PLATE FLANGE (L2)

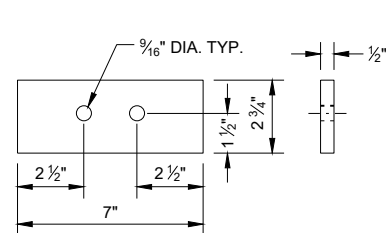


FRONT VIEW

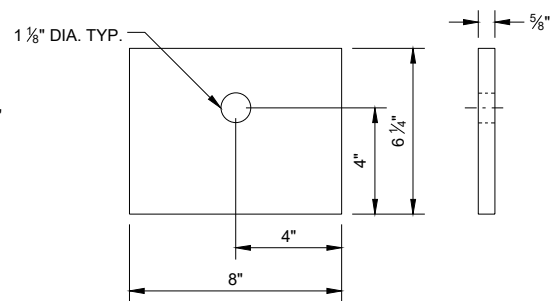


SIDE VIEW

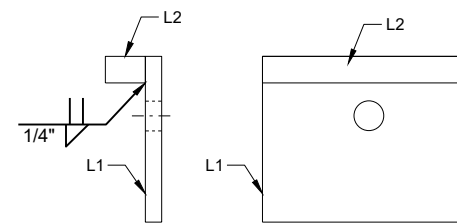
GROUND STRUT CONNECTOR (G2)



GROUND STRUT PLATE (G3)



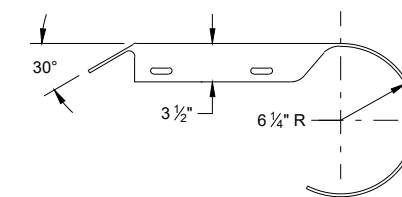
BEARING PLATE (L1)



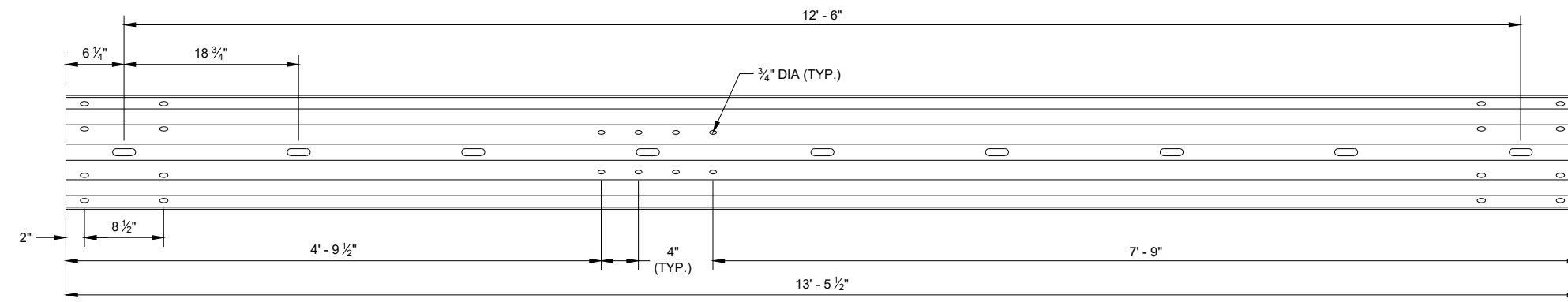
SIDE VIEW

FRONT VIEW

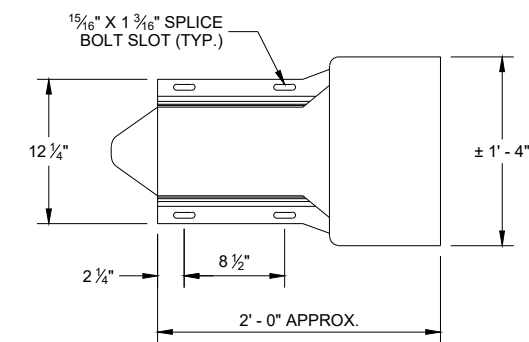
BEARING PLATE ASSEMBLY



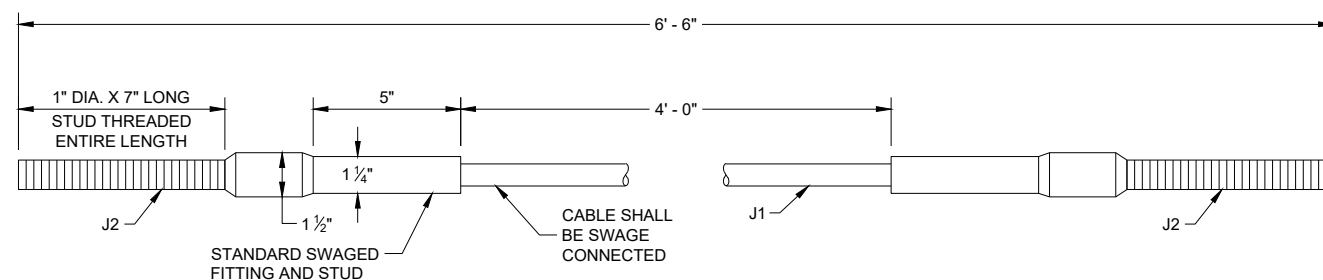
PLAN VIEW



TYPE 2 GUARDRAIL (E1)



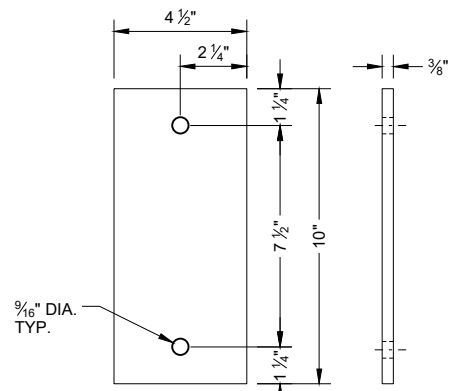
**ELEVATION VIEW
ROUNDED BUFFER END (E3)**



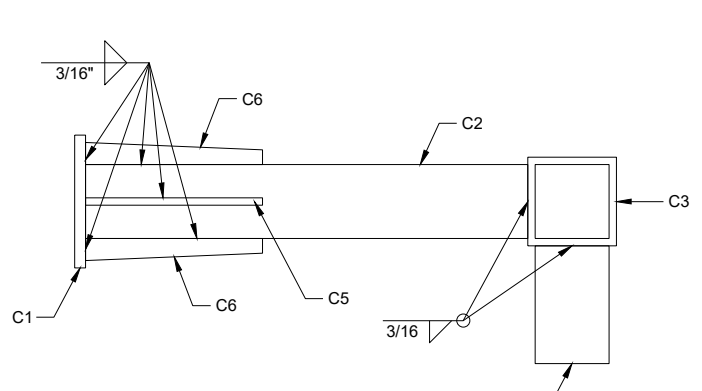
CABLE ASSEMBLY

**MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL**

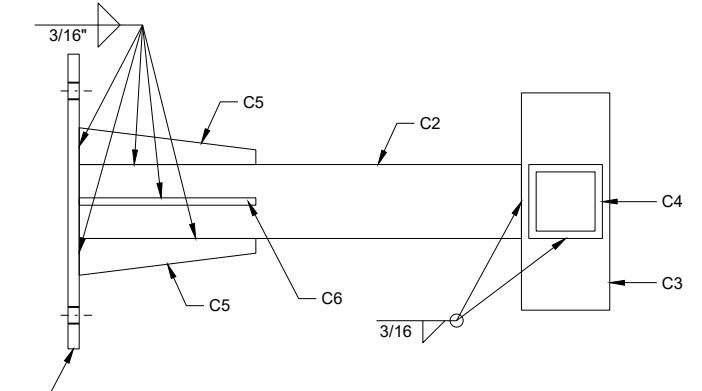
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION



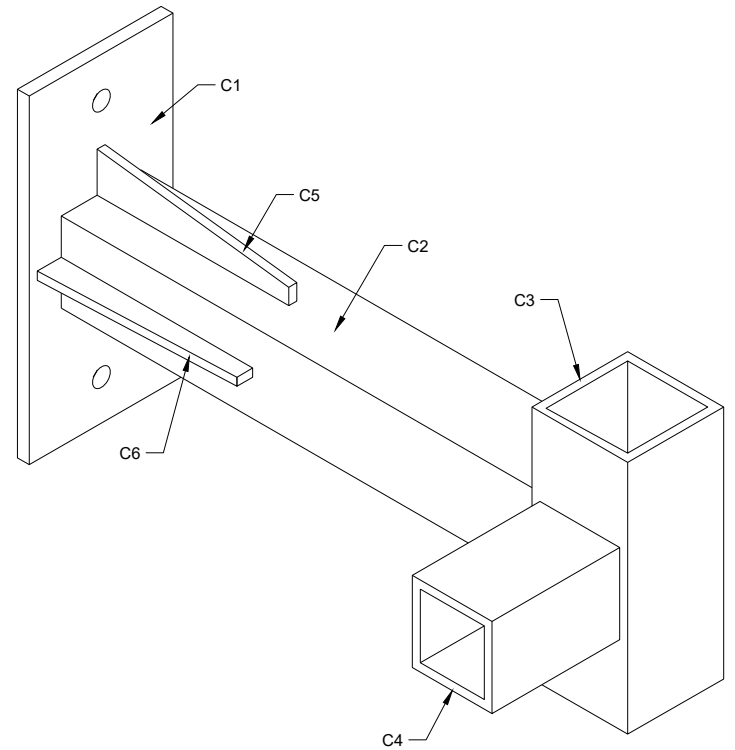
ARM PLATE (C1)



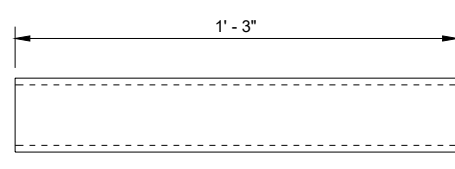
**TOP VIEW
ARM ASSEMBLY**



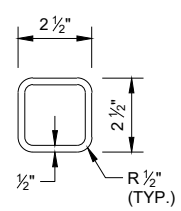
**SIDE VIEW
ARM ASSEMBLY**



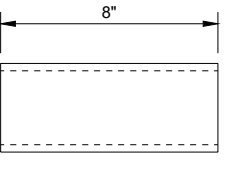
**ISOMETRIC VIEW
ARM ASSEMBLY**



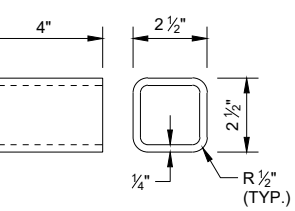
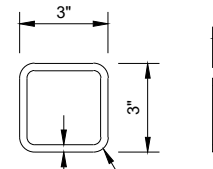
ARM TUBE 1 (C2)



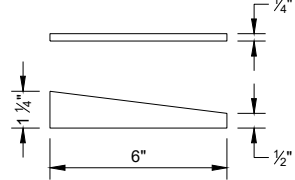
ARM TUBE 2 (C3)



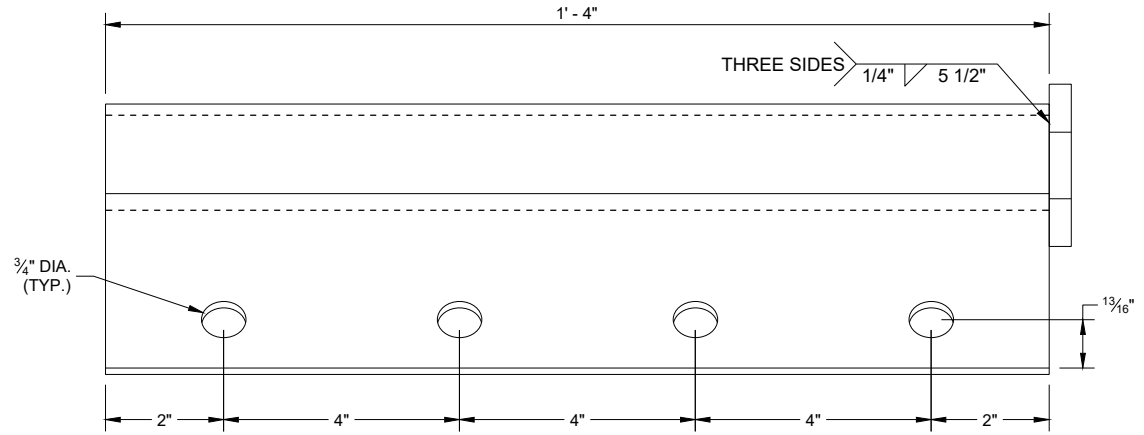
ARM TUBE 3 (C4)



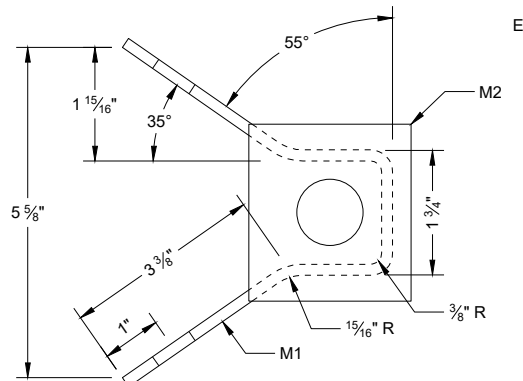
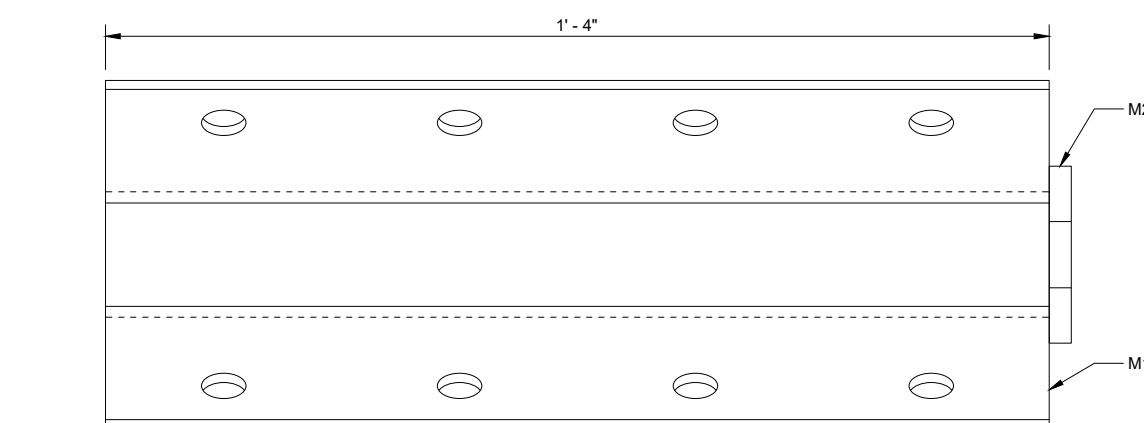
**ARM GUSSET
PLATE 1 (C5)**



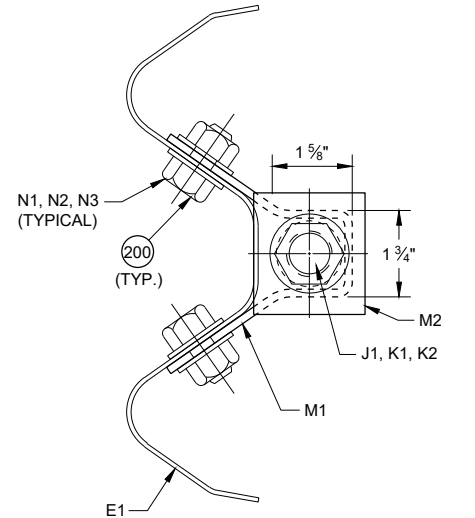
**ARM GUSSET
PLATE 2 (C6)**



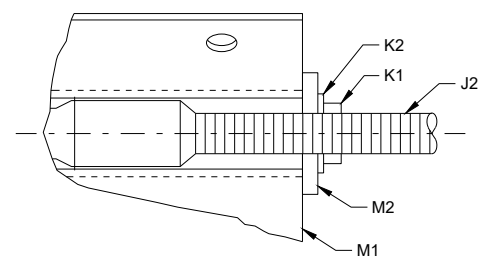
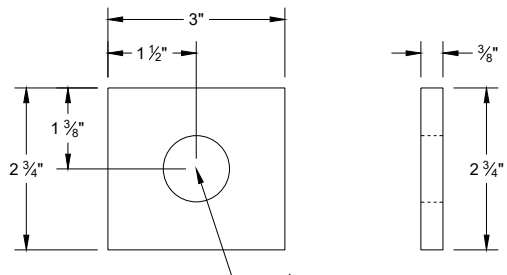
ANCHOR BRACKET (M1, M2)



ANCHOR BRACKET BEARING PLATE (M2)



SECTION A - A



**MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
A1	TYPE 2 FOUNDATION TUBE	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 8" x 6" x 3/16"
A2	LOWER PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	5/8" THICKNESS
A3	POST GUSSET	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/4" THICKNESS
A4	UPPER PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	3/4" THICKNESS
A5	TYPE 2 POST	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	
B1	BREAKAWAY BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM F3125 GRADE A325 TYPE 1 HEAVY HEX HEAD OR SAE J429 GRADE 5 HEAVY HEX HEAD / ASTM A449 TYPE 1 HEAVY HEX HEAD. BOLTS MAY BE FULLY THREADED . PROVIDE ENOUGH THREADING FOR PROPER TIGHTENING OF BOLT.	7/16" DIA.
B2	BREAKAWAY BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	7/16" DIA.
B3	BREAKAWAY BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
C1	ARM ASSEMBLY PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	5/8" THICKNESS
C2	ARM ASSEMBLY TUBE 1	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 8" x 6" x 3/16"
C3	ARM ASSEMBLY TUBE 2	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 3" x 3" x 1/4"
C4	ARM ASSEMBLY TUBE 3	AASHTO M111 / ASTM A123 ASTM A500 GRADE B OR ASTM A-501	TS 2 1/2" x 2 1/2" X 1/4"
C5	ARM ASSEMBLY GUSSET PLATE 1	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/4" THICKNESS
C6	ARM ASSEMBLY GUSSET PLATE 2	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/4" THICKNESS
D1	ARM ASSEMBLY BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	1/2" DIA.
D2	ARM ASSEMBLY WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	1/2" DIA.
D3	ARM ASSEMBLY NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	1/2" DIA.
E1	TYPE 2 GUARD RAIL	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
E2	BEAM GUARD RAIL	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
E3	BEAM GUARD ROUNDED BUFFER END	AASHTO M180 CLASS A TYPE 2 12 GAUGE APPROVED PRODUCER	
F1	POST BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	5/8" DIA.
F2	POST BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
F3	POST BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291/ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
G1	GROUND STRUT CHANNEL	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/2" x 11 3/4" x 10 GAUGE
G2	GROUND STRUT CONNECTOR	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/4" THICKNESS
G3	GROUND STRUT PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1/2" THICKNESS

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SDD 14B47 - 03f

SDD 14B47 - 03f

**MIDWEST GUARDRAIL
SYSTEM (MGS)
TYPE 2 TERMINAL**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

BILL OF MATERIALS - TYPE 2 TERMINAL (MGS)

PART	DESCRIPTION	MATERIALS SPECIFICATIONS	NOTES
H1	GROUND STRUT BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	7/8" DIA.
H2	GROUND STRUT BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	7/8" DIA.
H3	GROUND STRUT BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC HEAVY HEX HEAD 5/8" ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	
J1	BCT CABLE	AASHTO M30 / ASTM A741 6 x 19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS), 6 x 19 INDEPENDENT WIRE CORE (IWRC) IMPROVED PLOW STEEL (IPS) TYPE II OR IIC, CLASS C ZINC COATED MIN. BREAKING STRENGTH OF 42.7 KIPS	3/4" DIA.
J2	BCT CABLE	UNC 1" ASTM A576 GRADE 1035 SWAGE FITTINGS ARE TO BE FACTORY SWEDGED. MIN BREAKING STRENGTH OF 42.7 KIPS ASME B30.26 "FORGED, CAST, OR DIE STAMPED WITH THE FOLLOWING IN TO CONNECTION: NAME OF MANUFACTURE OR TRADEMARK OF CONNECTION'S MANUFACTURER, SIZE OR RATED LOAD, GRADE FOR ALLOY EYEBOLTS."	
K1	CABLE ASSEMBLY NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	1" DIA.
K2	CABLE ASSEMBLY WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1	1" DIA.
L1	BEARING PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	5/8" THICKNESS
L2	BEARING PLATE FLANGE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	1" THICKNESS
M1	BEAM GUARD ANCHOR BRACKET	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	
M2	BEAM GUARD ANCHOR END PLATE	AASHTO M111 / ASTM A123 ASTM A36 MIN. STRENGTH 36 KSI, OR ASTM A529 MAX. STRENGTH 50 KSI, OR ASTM A572 MAX STRENGTH 50 KSI, OR ASTM A709 MAX STRENGTH 50 KSI, OR ASTM A992 MAX STRENGTH 50 KSI	3/8" THICKNESS
N1	ANCHOR BRACKET BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	5/8" DIA.
N2	ANCHOR BRACKET BOLT WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 F436 TYPE 1 (HARDEN WASHER ONLY)	5/8" DIA.
N3	ANCHOR BRACKET BOLT NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
P1	FOUNDATION TUBE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	1/2" DIA.
P2	FOUNDATION TUBE WASHER	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 7/8" ASTM F844 TYPE 1 (HARDENED WASHER ONLY)	1/2" DIA.
P3	FOUNDATION TUBE NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	
Q1	SPLICE BOLT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC AASHTO M180 HEAD ASTM A307 GRADE B OR SAE J429 GRADE 2 OR ASTM F1554 GRADE 36	
Q2	SPLICE NUT	HOT DIP AASHTO M232 CLASS / ASTM A153 CLASS C / ASTM F2329 C OR MECHANICAL GAL. TO AASHTO M298 CLASS 50 TYPE 1 / ASTM B695 CLASS 50 TYPE 1 UNC OVER TAP NUTS AS SPECIFIED IN AASHTO 291 / ASTM A 563 AASHTO M180 RECESSED HEAVY HEX HEAD ASTM A563DH OR SAE J995 GRADE 5	5/8" DIA.

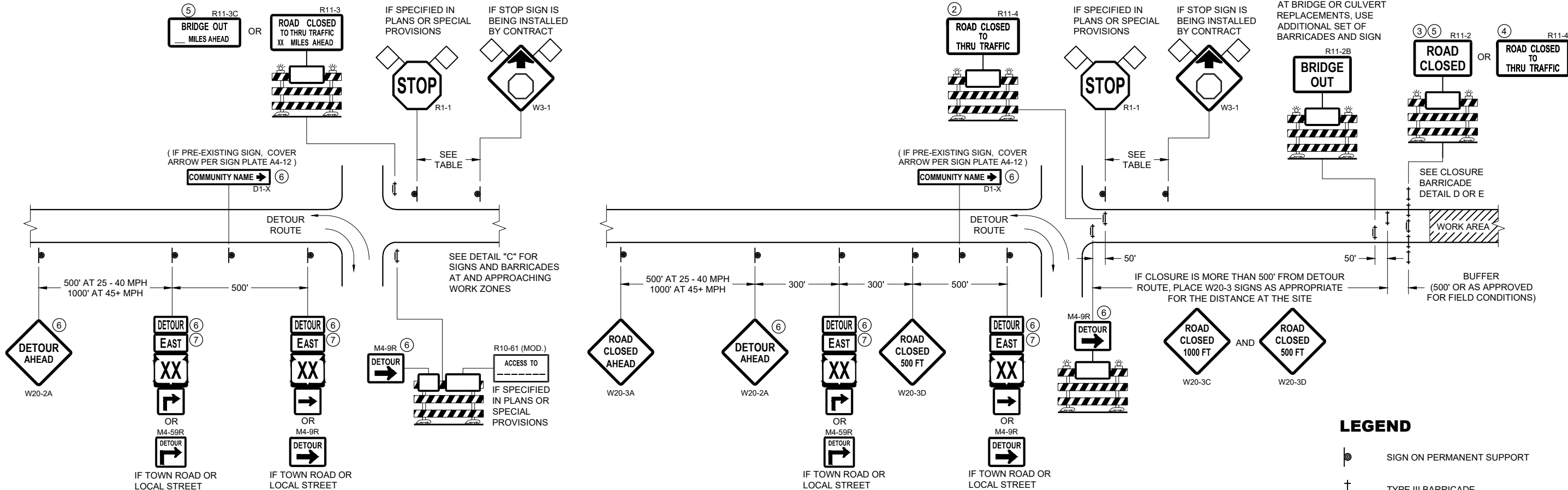
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SDD 14B47 - 039

SDD 14B47 - 039

MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 2 TERMINAL	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED August 2021 DATE	/S/ Rodney Taylor ROADWAY STANDARDS DEVELOPMENT ENGINEER
FHWA	



**DETAIL A
MAINLINE CLOSURE WITH POSTED DETOUR**

WORK ZONE GREATER THAN OR EQUAL TO 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

**DETAIL B
MAINLINE CLOSURE WITH POSTED DETOUR**

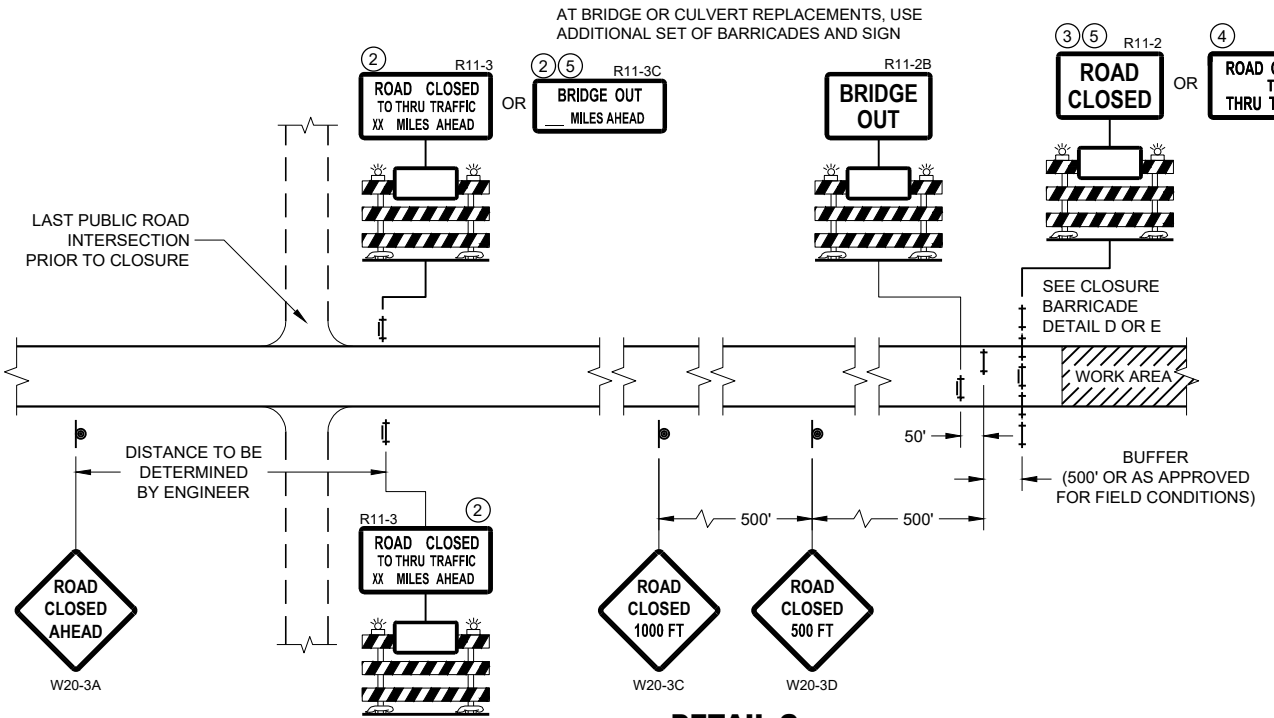
WORK ZONE LESS THAN 1/2 MILE FROM
DETOUR ROUTE (1000 FEET IF URBAN)

LEGEND

- SIGN ON PERMANENT SUPPORT
- TYPE III BARRICADE
- TYPE III BARRICADE WITH ATTACHED SIGN
- TYPE "A" WARNING LIGHT (FLASHING)
- WORK AREA
- FLAGS, 16" X 16" MIN. (ORANGE)
- M4 - 8
- M3 - X
- M1 - 4 OR M1 - 6 OR M1 - 5A
- M05 - 1 OR M06 - 1

SPEED LIMIT (MPH)	"STOP AHEAD" ADVANCE WARNING DISTANCE (FT)
25	200
30	200
35	350
40	350
45	500
50	550
55	750

SEE SDD 15C2-SHEET "b"
FOR GENERAL NOTES
AND FOOTNOTES ① THROUGH ⑦

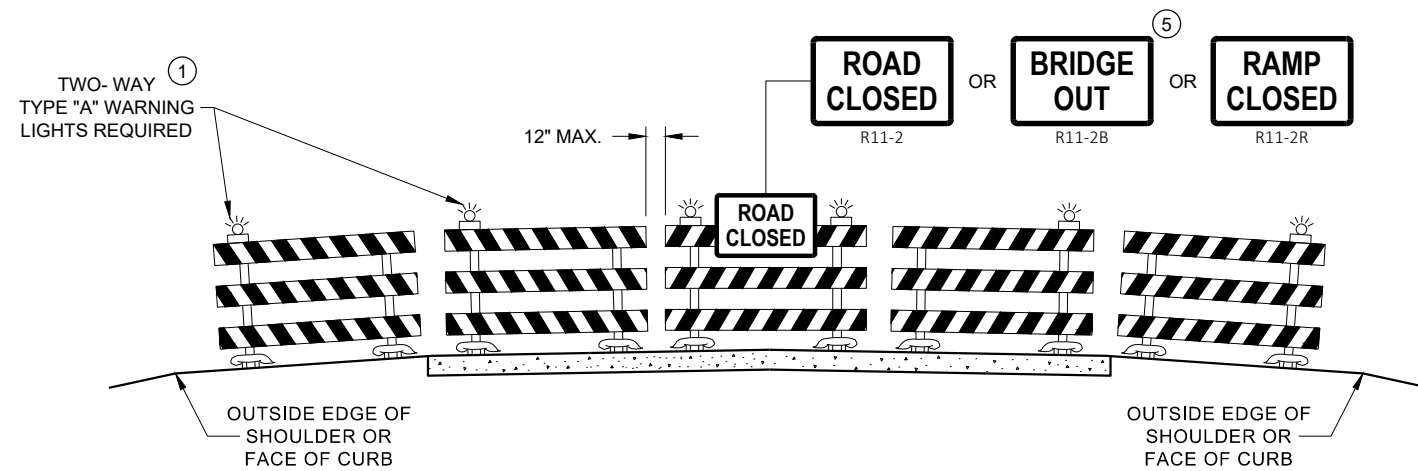


**DETAIL C
MAINLINE CLOSURE, NO POSTED DETOUR**

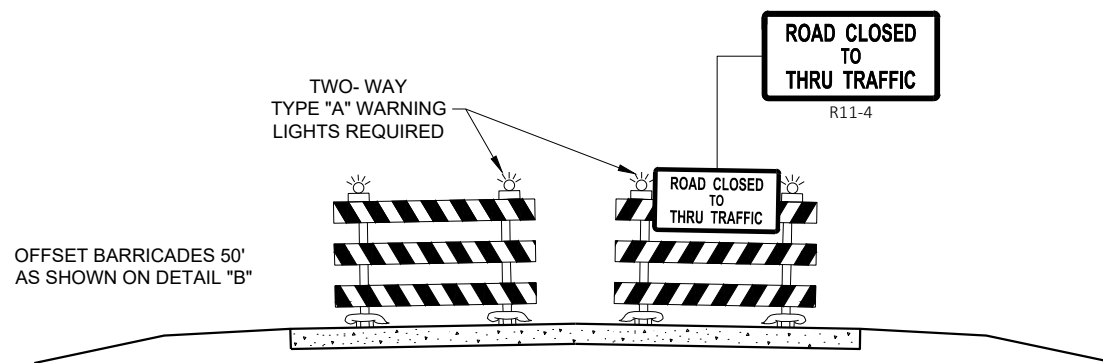
**BARRICADES AND SIGNS
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE DATE WORK ZONE ENGINEER
FHWA



**DETAIL D
ROAD CLOSURE BARRICADE DETAIL
APPROACH VIEW**



**DETAIL E
LANE CLOSURE BARRICADE DETAIL
APPROACH VIEW**

SEE SDD 15C2 - SHEET "a" FOR LEGEND

GENERAL NOTES

THE EXACT NUMBER, LOCATION, AND SPACING OF ALL SIGNS AND BARRICADES SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE", SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

THE SPACING BETWEEN TRAFFIC CONTROL SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND SHOULD PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

BARRICADES THAT MUST BE MOVED FOR A WORK OPERATION SHALL BE IMMEDIATELY RE-ESTABLISHED UPON COMPLETION OF THE OPERATION, OR FOR CONTINUING OPERATIONS, AT THE END OF EACH WORKING DAY.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

ALL TYPE III BARRICADES SHALL HAVE RAILS REFLECTORIZED ON BOTH FACES. STRIPES SHALL BE PROPERLY SLOPED DOWN TOWARD THE TRAFFIC SIDE OR AS SHOWN IN THE ROAD CLOSURE BARRICADE DETAIL "D" FOR FULL ROAD CLOSURES.

TYPE "A" LOW - INTENSITY FLASHING WARNING LIGHTS SHALL BE VISIBLE ON BOTH SIDES OF THE BARRICADE.

THE R11 - 2, R11 - 3, M4 - 9, R11 - 4, AND R10 - 61 SIGNS PLACED ON THE BARRICADES SHALL COVER NO MORE THAN THE TOP RAIL. THE SIGNS SHALL NOT COVER ANY PORTION OF THE MIDDLE RAIL OR BOTTOM RAILS.

"WO" AND "MO" SIGNS ARE THE SAME AS "W" AND "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

ALL SIGNS SHALL BE 48" X 48" UNLESS OTHERWISE NOTED BELOW:

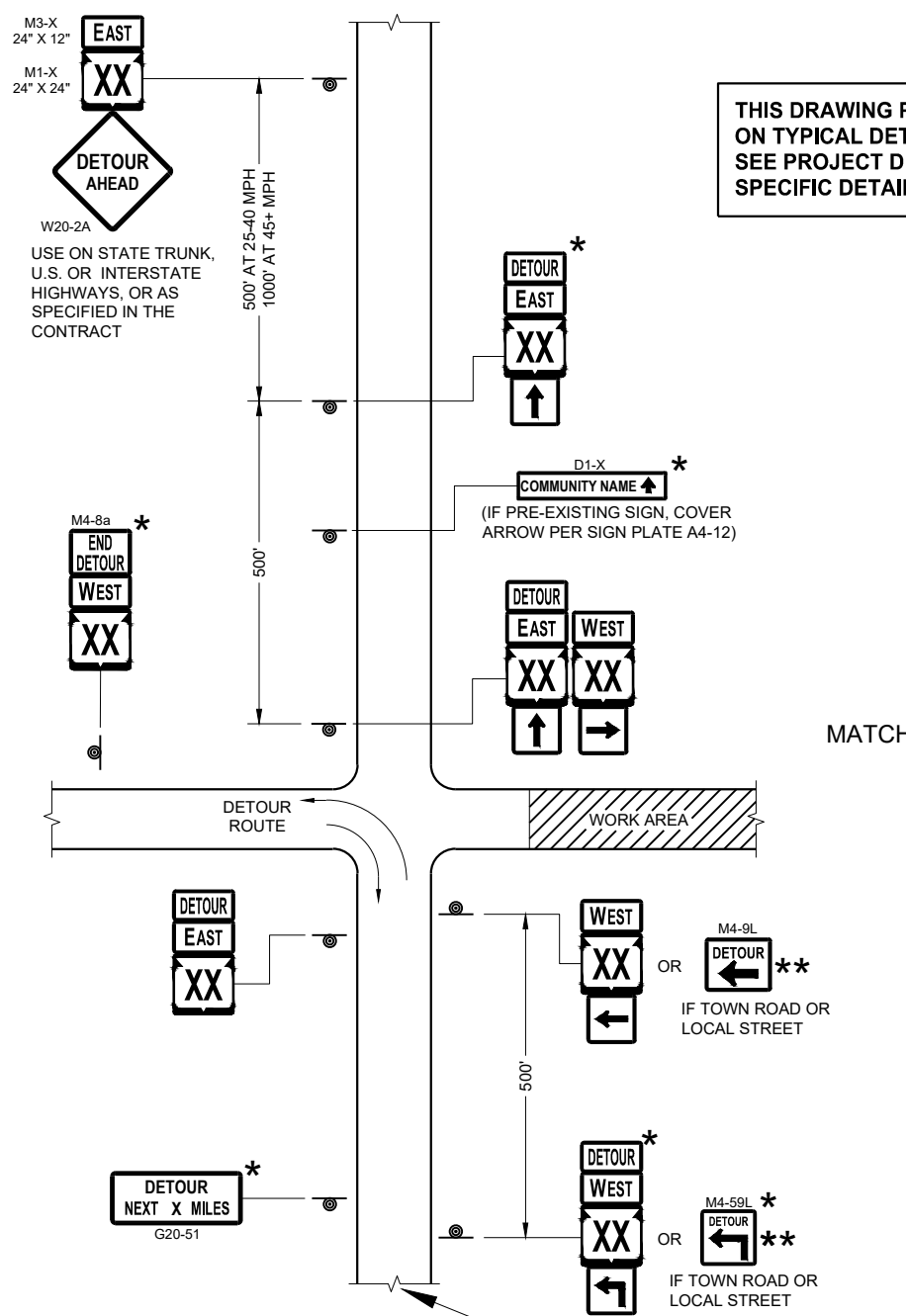
- R11 - 2 SHALL BE 48" X 30"
- R11 - 3 SHALL, R11 - 4 AND R10 - 61 SHALL BE 60" X 30"
- M4 - 9 SHALL BE 30" X 24"
- M3 - X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4 - 8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1 - 4, M1 - 5A AND M1 - 6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- MO5 - 1 AND MO6 - 1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- D1 - X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.
- R1 - 1 SHALL BE 36" X 36"

- ① TWO WARNING LIGHTS SHALL BE PROVIDED ON THE CENTER BARRICADE AND A MINIMUM OF ONE WARNING LIGHT SHALL BE PROVIDED ON EACH OF THE OTHER BARRICADES WITHIN THE ROADWAY LIMITS. SPACING OF THE WARNING LIGHTS SHALL BE UNIFORM TO THE EDGE OF ROADWAY AS SHOWN (APPROX. 8 FOOT LIGHT SPACING).
- ② THESE SIGNS AND BARRICADES ARE NOT REQUIRED IF ROAD CLOSURE BEGINS AT AN INTERSECTION.
- ③ FOR ROAD CLOSURE WITHOUT LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "D".
- ④ FOR ROAD CLOSURE WITH LOCAL ACCESS TO PROJECT, SEE ROAD CLOSURE BARRICADE DETAIL "E".
- ⑤ FOR BRIDGE OR CULVERT REPLACEMENTS, SUBSTITUTE "BRIDGE OUT" INSTEAD OF "ROAD CLOSED" ON R11 - 2 AND R11 - 3 SIGNS.
- ⑥ INSTALL DETOUR AND COMMUNITY GUIDE SIGNS AND ARROWS ONLY IF SPECIFIED IN THE CONTRACT. IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. MODIFY EXISTING SIGNS WHERE POSSIBLE. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. IF DETOUR SIGNS ARE BEING INSTALLED BY OTHERS, PLACE THE CONTRACTED TRAFFIC CONTROL SIGNS TO ALLOW FOR PLACEMENT OF ALL WARNING, DETOUR AND GUIDE SIGNS AS SHOWN.
- ⑦ "EAST" CARDINAL DIRECTION MARKERS AND RIGHT TURN ARROWS ARE SHOWN. USE OTHER CARDINAL DIRECTIONS AND ARROWS AS APPROPRIATE.

**BARRICADES AND SIGNS
FOR
VARIOUS CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER
FHWA



THIS DRAWING PROVIDES GENERAL GUIDANCE ON TYPICAL DETOUR SIGN LAYOUT AND SPACING. SEE PROJECT DETOUR SIGNING SHEETS FOR SPECIFIC DETAILS FOR EACH PROJECT.

LEGEND

- SIGN ON PERMANENT SUPPORT
- WORK AREA
- M4 - 8
- M3 - X
- M1 - 4
- M1 - 6
- M1 - 5A
- M05 - 1
- M06 - 1
- M06 - 1

GENERAL NOTES

THE EXACT NUMBER, LOCATION AND SPACING OF ALL SIGNS SHALL BE ADJUSTED TO FIT FIELD CONDITIONS AS APPROVED BY THE ENGINEER.

IF THERE ARE EXISTING ROUTE MARKER ASSEMBLIES THAT WILL REMAIN IN PLACE, ADJUST THE LOCATION OF THE DETOUR ROUTE SIGNS TO CORRESPOND WITH THE EXISTING ASSEMBLIES. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS. MODIFY EXISTING SIGNS WHERE POSSIBLE.

THE SPACING BETWEEN TRAFFIC CONTROL AND DETOUR SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A DESIRABLE MINIMUM OF 200 FEET CLEARANCE TO EXISTING SIGNS THAT WILL REMAIN IN PLACE.

ANY SIGNS TEMPORARY OR EXISTING, WHICH CONFLICT WITH TRAFFIC CONTROL "IN USE" SHALL BE REMOVED OR COVERED AS NEEDED AND AS APPROVED BY THE ENGINEER.

SIGNS THAT WILL BE IN PLACE LESS THAN 7 CONTINUOUS DAYS AND NIGHTS MAY BE MOUNTED ON PORTABLE SUPPORTS.

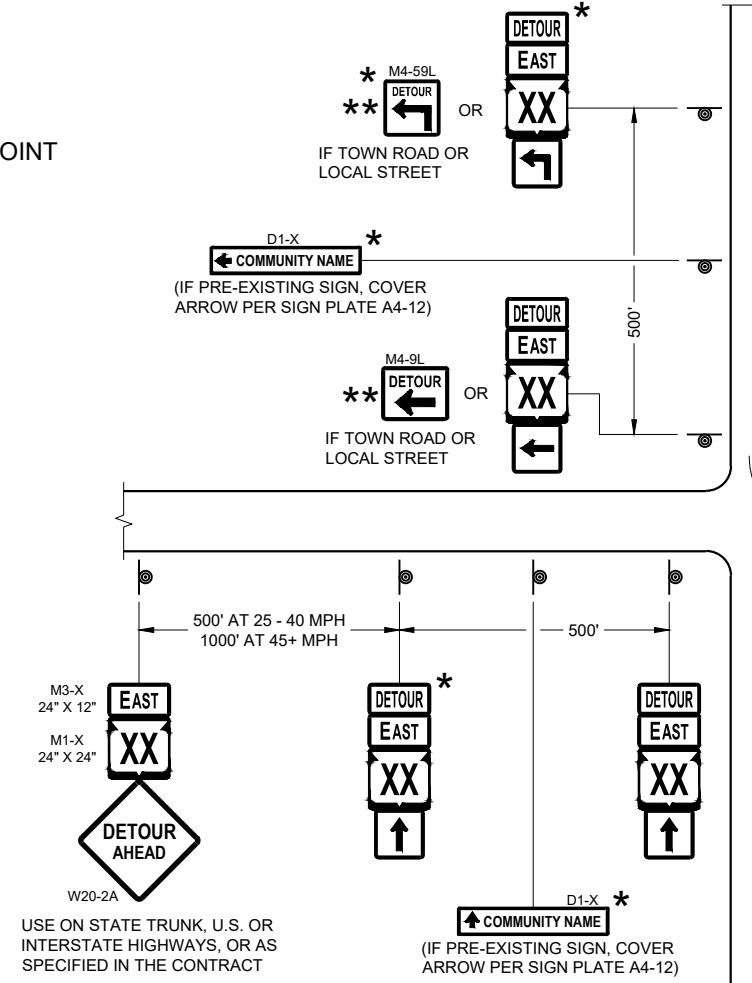
"MO" SIGNS ARE THE SAME AS "M" SIGNS EXCEPT THE BACKGROUND IS ORANGE.

SIGN SIZES SHALL BE AS FOLLOWS:

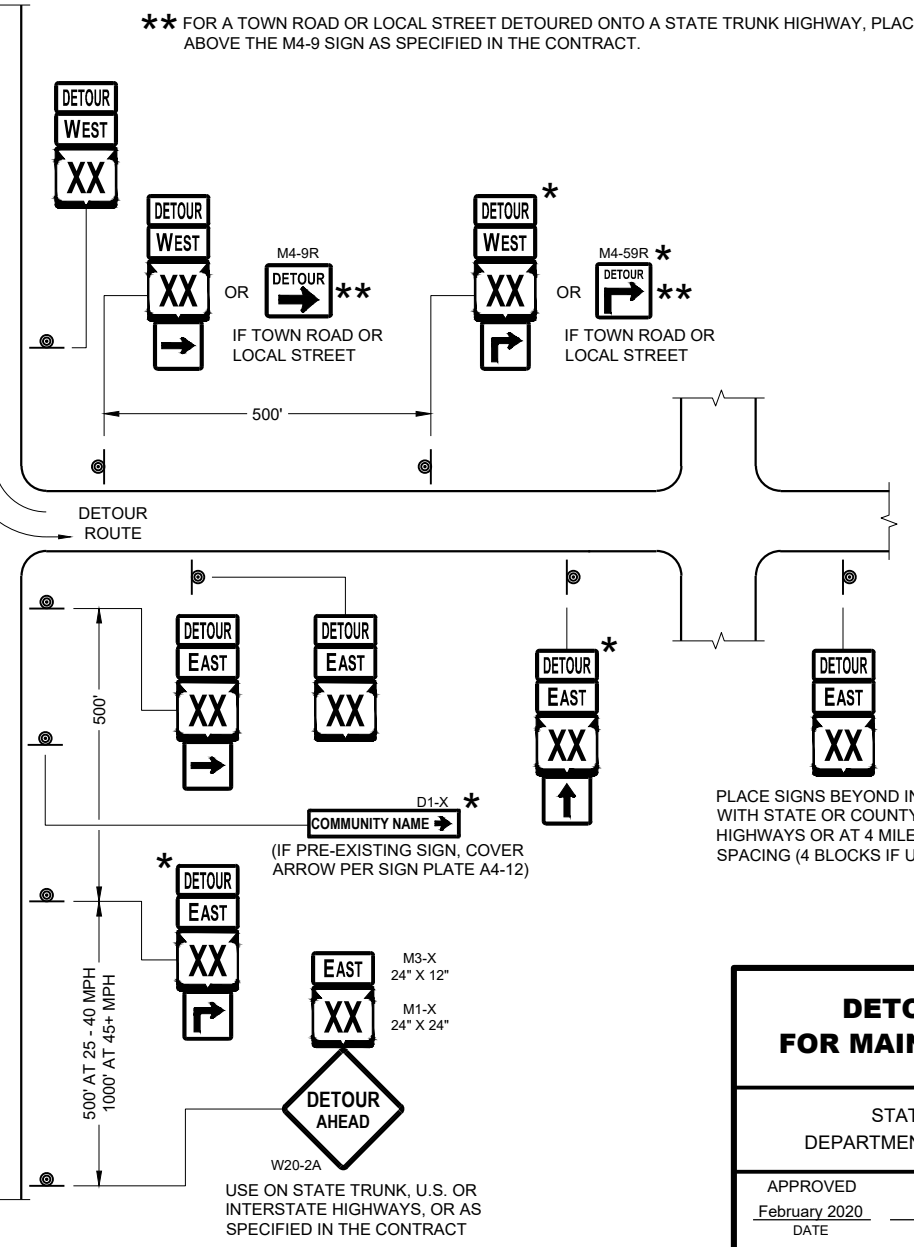
- M3-X SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-8 SHALL BE 24" X 12" (36" X 18" IF NEEDED TO MATCH EXISTING SIGNS)
- M1-4, M1-5A AND M1-6 SHALL BE 24" X 24" (36" X 36" IF NEEDED TO MATCH EXISTING SIGNS)
- M05-1 AND M06-1 SHALL BE 21" X 21" (30" X 30" IF NEEDED TO MATCH EXISTING SIGNS)
- M4-9 AND M4-59 SHALL BE 30" X 24"
- M4-8a SHALL BE 24" X 18"
- G20-51 SHALL BE 60" X 24"
- W20-2A SHALL BE 48" X 48"
- D1-X SHALL BE AS SHOWN ON SPECIFIC PROJECT SIGNING DETAIL SHEETS.

- * OPTIONAL SIGNS. SEE SPECIFIC PROJECT DETOUR SIGNING DETAIL SHEETS.
- ** FOR A TOWN ROAD OR LOCAL STREET DETOURED ONTO A STATE TRUNK HIGHWAY, PLACE A ROAD NAME PLAQUE ABOVE THE M4-9 SIGN AS SPECIFIED IN THE CONTRACT.

MATCH POINT



**DETAIL F
DETOUR SIGNING**



**DETOUR SIGNING
FOR MAINLINE CLOSURES**

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
February 2020 /S/ Andrew Heidtke
DATE WORK ZONE ENGINEER




FHWA

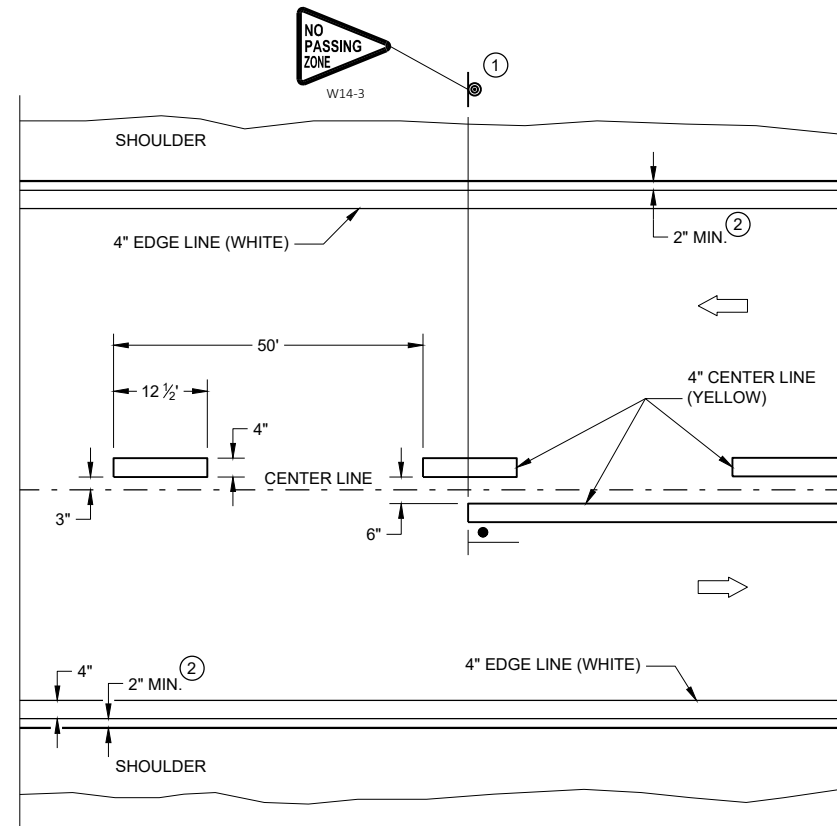
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO STANDARD SPECIFICATIONS AND SPECIAL PROVISIONS.

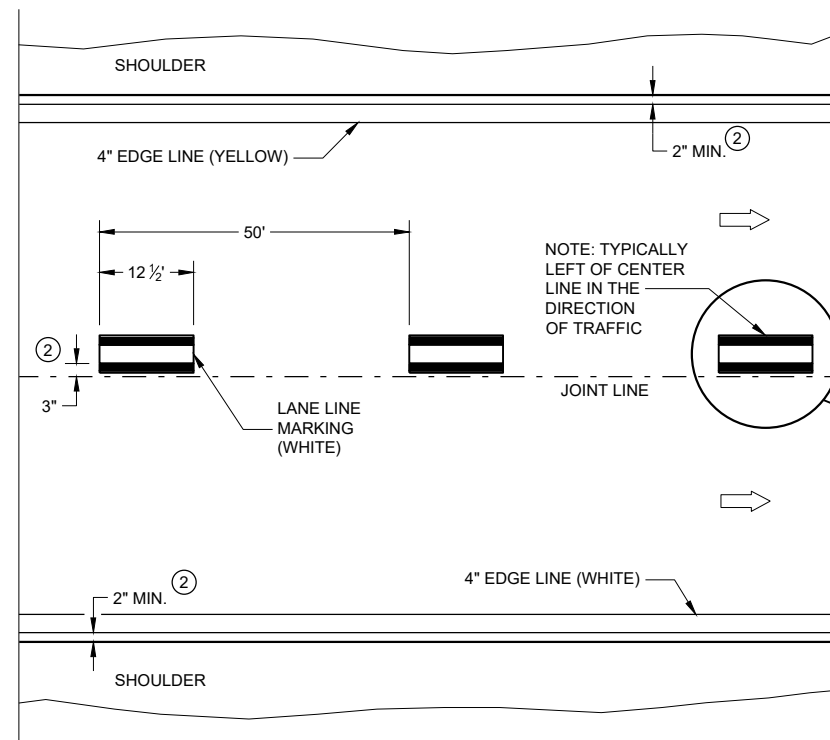
- ① LOCATE THE NO PASSING ZONE W14-3 SIGN WITHIN 50 FEET OF THE "T" MARKING
- ② MEASURE FROM EDGE OF MARKING TO JOINT LINE. THIS DOES NOT INCLUDE SPACE NEEDED FOR GROOVING OPERATIONS.

LEGEND

-  "T" MARKING
-  SIGN ON PERMANENT SUPPORT
-  DIRECTION OF TRAFFIC

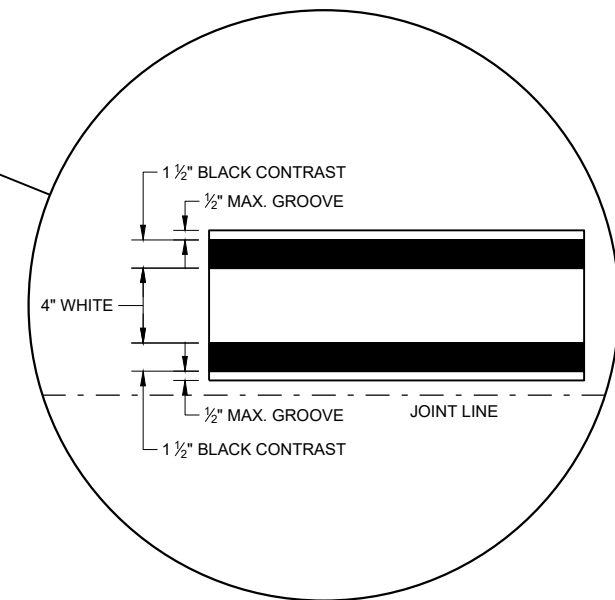


TWO WAY TRAFFIC



ONE WAY TRAFFIC

PERMANENT PAVEMENT MARKING



PERMANENT LONGITUDINAL PAVEMENT MARKINGS

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
DATE: May 2022 /S/ Jeannie Silver
STATEWIDE SIGNING AND MARKING ENGINEER

DESIGN DATA

LIVE LOAD:
 DESIGN LOADING: HL-93
 INVENTORY RATING FACTOR: RF = 1.07
 OPERATING RATING FACTOR: RF = 1.39
 WISCONSIN STANDARD PERMIT VEHICLE (WIS.-SPV); 250(KIPS)

STRUCTURE IS DESIGNED FOR A FUTURE WEARING SURFACE OF 20 POUNDS PER SQUARE FOOT.

MATERIAL PROPERTIES:

CONCRETE MASONRY:
 SUPERSTRUCTURE $f'_c = 4,000$ P.S.I.
 ALL OTHER $f'_c = 3,500$ P.S.I.
 BAR STEEL REINFORCEMENT:
 GRADE 60 $f_y = 60,000$ P.S.I.
 36W" PRESTRESSED GIRDERS:
 CONCRETE MASONRY $f'_c = 8,000$ P.S.I.
 STRANDS; 0.6" DIA. WITH ULTIMATE TENSILE STRENGTH OF 270,000 P.S.I.

FOUNDATION DATA

ABUTMENTS TO BE SUPPORTED ON HP 10 X 42 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 180 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 95 FEET LONG AT SOUTH ABUTMENT. ESTIMATED 90 FEET LONG AT NORTH ABUTMENT.

PIERS TO BE SUPPORTED ON HP 12 X 53 STEEL PILING DRIVEN TO A REQUIRED DRIVING RESISTANCE OF 220 TONS ** PER PILE AS DETERMINED BY THE MODIFIED GATES DYNAMIC FORMULA. ESTIMATED 70 FEET LONG AT BOTH PIERS.

** THE FACTORED AXIAL RESISTANCE OF PILES IN COMPRESSION USED FOR DESIGN IS THE REQUIRED DRIVING RESISTANCE MULTIPLIED BY A RESISTANCE FACTOR OF 0.5 USING MODIFIED GATES TO DETERMINE DRIVEN PILE CAPACITY.

CURVE DATA

STH 32 NB	CTH PP
P.I. = 652+98.07	P.I. = 115+40.45
$\Delta = 69^\circ 20' 32''$	$\Delta = 30^\circ 11' 25''$
D = 4°59'08"	D = 4°32'22"
T = 794.89'	T = 340.45'
L = 1390.83'	L = 665.07'
R = 1149.21'	R = 1262.19'
S.E. = 5.7%	S.E. = 3.5%
P.C. = 645+03.18	P.C. = 112+00.00
P.T. = 658+94.01	P.T. = 118+65.07

TRAFFIC VOLUME

STH 32
ADT = 5,600 (2044)
R.D.S. = 50 M.P.H.
CTH PP
ADT = 6,650 (2044)
R.D.S. = 50 M.P.H.

STRUCTURE DESIGN CONTACTS:

DAN MONROE (608) 266-8490
 LAURA SHADEWALD (608) 267-9592

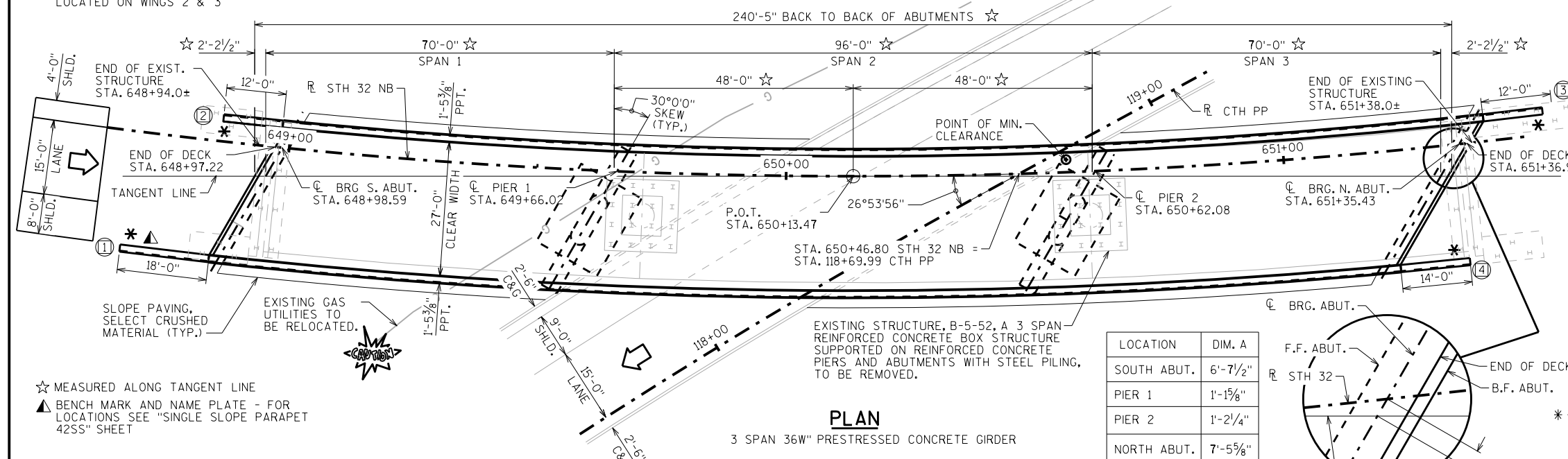
LIST OF DRAWINGS

1. GENERAL PLAN
2. CROSS SECTION & QUANTITIES
3. SUBSURFACE EXPLORATION
4. PILE REMOVAL SOUTH ABUT. & PIER 1
5. PILE REMOVAL NORTH ABUT. & PIER 2
6. SOUTH ABUTMENT
7. SOUTH ABUTMENT DETAILS
8. NORTH ABUTMENT
9. NORTH ABUTMENT DETAILS
10. PIER 1
11. PIER 1 DETAILS
12. PIER 2
13. PIER 2 DETAILS
14. 36W" PRESTRESSED GIRDER DETAILS 1
15. 36W" PRESTRESSED GIRDER DETAILS 2
16. STEEL DIAPHRAGM
17. FRAMING PLAN
18. TANGENT-OFFSET DECK LAYOUT
19. SUPERSTRUCTURE
20. SUPERSTRUCTURE CONCRETE DIAPHRAGMS
21. SUPERSTRUCTURE DETAILS 1
22. SUPERSTRUCTURE DETAILS 2
23. SINGLE SLOPE PARAPET 42SS
24. SLOPE PAVING (SELECT CRUSHED MATERIAL)

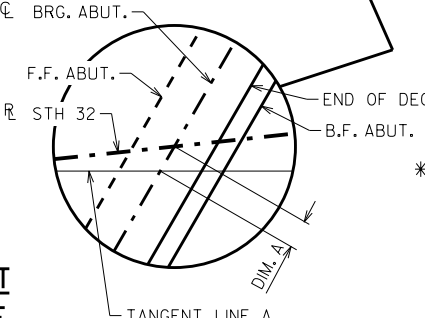
* PROVIDE FOR THREE BEAM GUARD RAIL ATTACHMENT AT UNUSED ANCHOR ASSEMBLIES CAULK HOLES SHUT WITH "100% SILICONE CAULK".

Ⓛ INDICATES WING NUMBER

NOTE: SURFACE DRAIN ANCHORS LOCATED ON WINGS 2 & 3

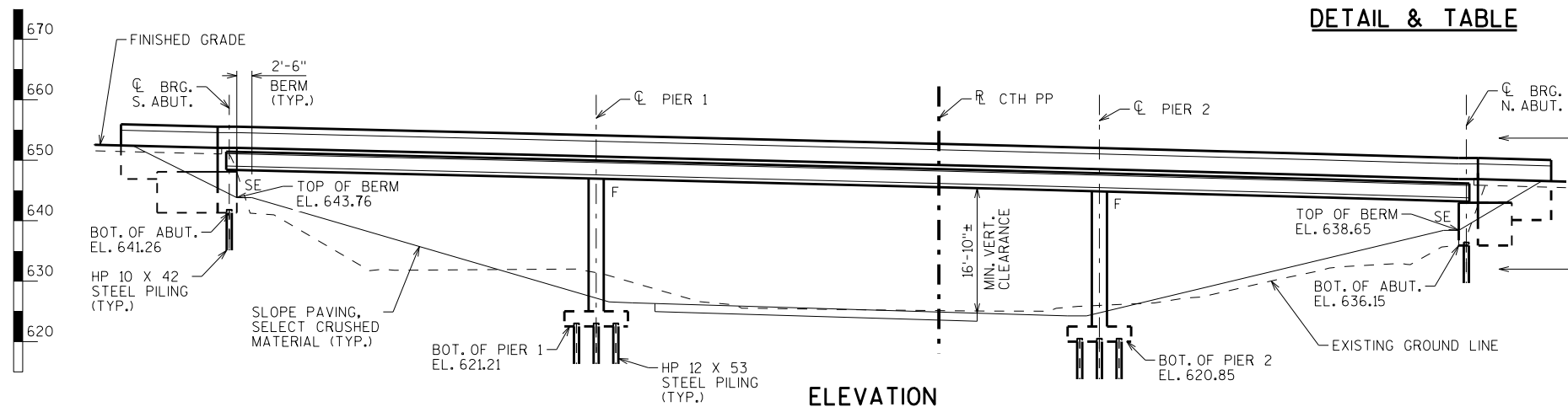


TANGENT OFFSET DETAIL & TABLE

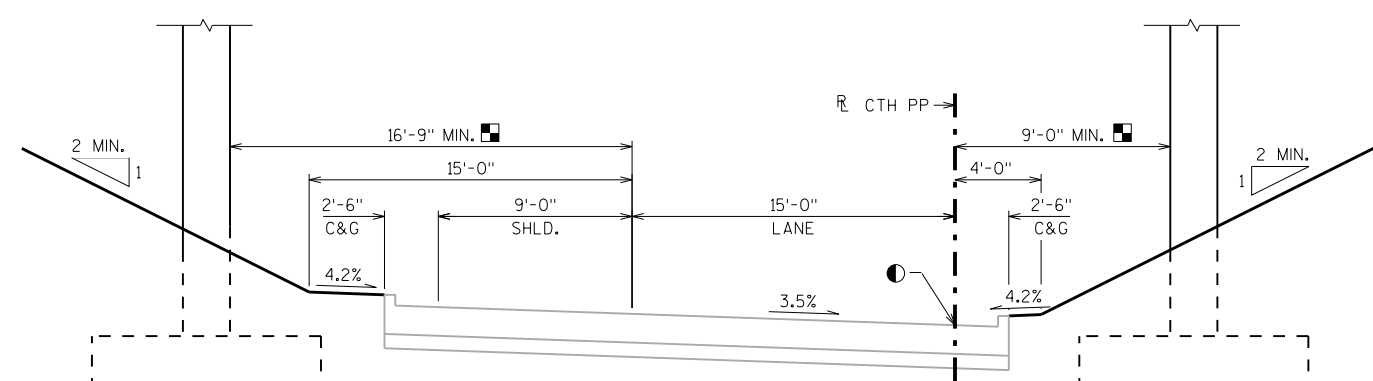
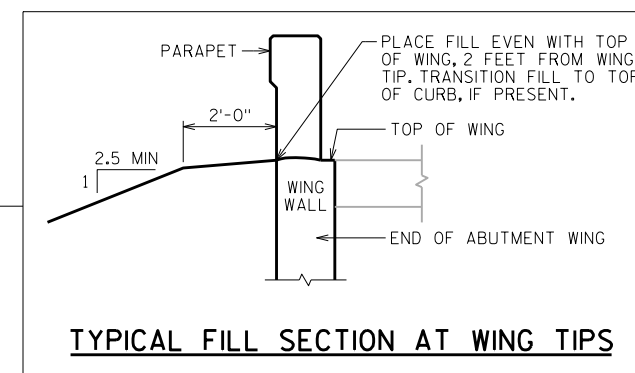


☆ MEASURED ALONG TANGENT LINE

▲ BENCH MARK AND NAME PLATE - FOR LOCATIONS SEE "SINGLE SLOPE PARAPET 42SS" SHEET



TYPICAL FILL SECTION AT WING TIPS



TYPICAL SECTION THRU CTH PP
 NORMAL TO CTH PP - LOOKING UPSTATION

■ HORIZONTAL CLEARANCE - LATERAL UNDERCLEARANCE TO STRUCTURE
 ● POINT REFERRED TO ON PROFILE GRADE LINE

8

8

ACCEPTED **BUREAU OF STRUCTURES** 8/23/22
 CHIEF STRUCTURES DESIGN ENGINEER DATE

STRUCTURE B-5-465

STH 32 NB OVER CTH PP SB

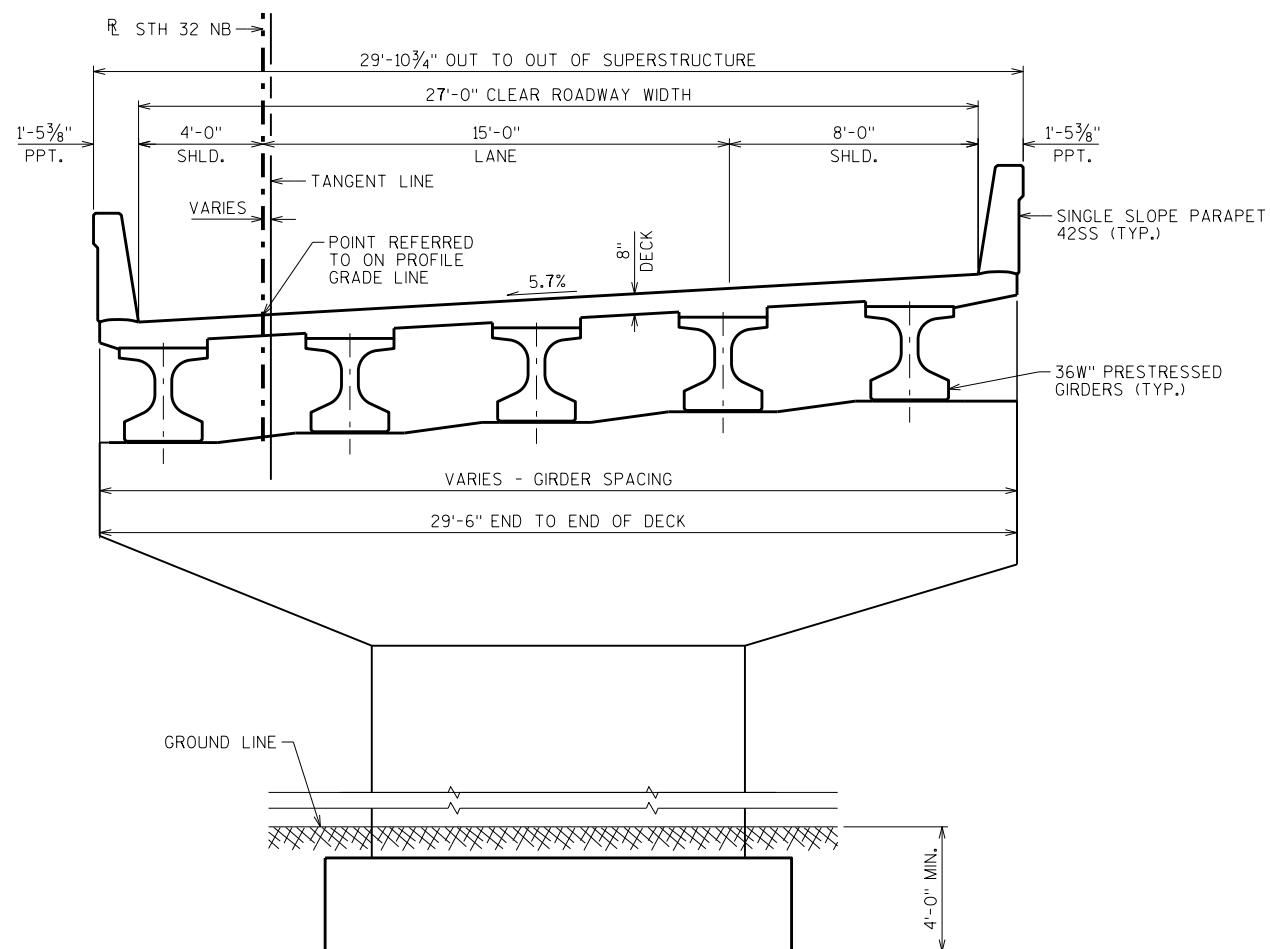
COUNTY BROWN CITY DE PERE

DESIGN SPEC. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS

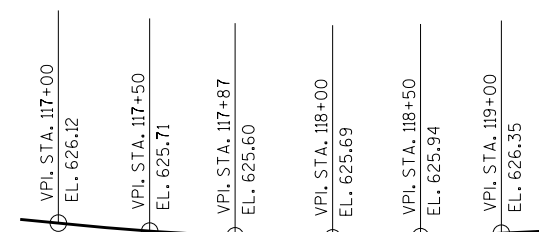
DESIGNED BY DLM DESIGNED CK'D. ETP DRAWN BY WWR PLANS CK'D. DLM

GENERAL PLAN SHEET 1 OF 24

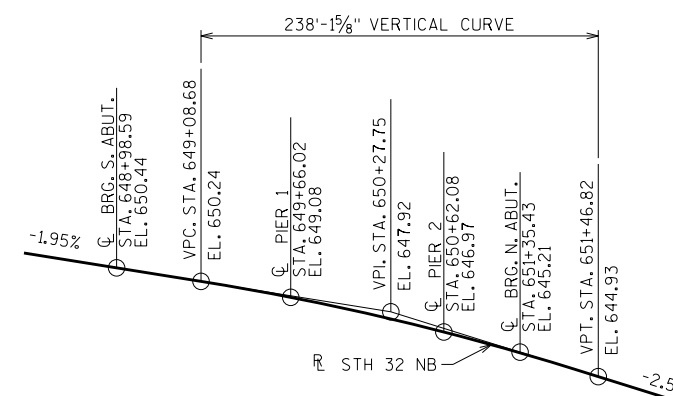
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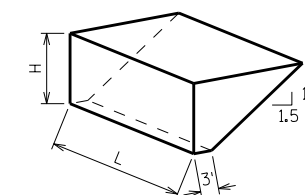
CROSS SECTION THRU ROADWAY
LOOKING NORTH (UPSTATION)



PROFILE GRADE LINE - CTH PP

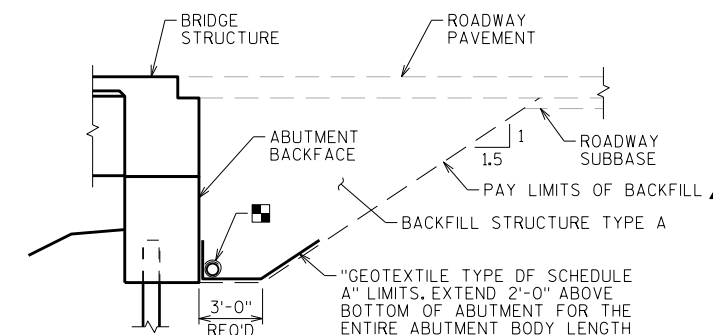


PROFILE GRADE LINE - STH 32 NB



ABUTMENT BACKFILL DIAGRAM FOR WINGS PARALLEL TO ROADWAY

L = OUT TO OUT OF ABUTMENT, INCLUDING WINGS (FT)
H = AVERAGE ABUTMENT FILL HEIGHT (FT)
EF = EXPANSION FACTOR (1.20 FOR CY BID ITEMS AND 1.00 FOR TON BID ITEMS)
 $V_{CF} = (L)(3.0')(H) + (L)(0.5)(1.5H)(H)$
 $V_{CY} = V_{CF} / 27$
 $V_{TON} = V_{CY} (2.0)$



TYPICAL SECTION THRU ABUTMENT

- ▲ BACKFILL PAY LIMITS. BACKFILL BEYOND BACKFILL PAY LIMITS SHALL BE INCIDENTAL TO EXCAVATION FOR STRUCTURES. LIMITS OF EXCAVATION SHALL BE DETERMINED BY THE CONTRACTOR.
- PIPE UNDERDRAIN WRAPPED (6 INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. ATTACH RODENT SHIELD AT ENDS OF PIPE UNDERDRAIN.

TOTAL ESTIMATED QUANTITIES

BID ITEM NUMBER	BID ITEMS	UNIT	SUPER.	SOUTH ABUT.	PIER 1	PIER 2	NORTH ABUT.	TOTALS
203.0220	REMOVING STRUCTURE (B-5-52)	EACH	—	—	—	—	—	1
206.1000	EXCAVATION FOR STRUCTURES BRIDGES B-5-465	LS	—	—	—	—	—	1
210.1500	BACKFILL STRUCTURE TYPE A	TON	—	205	—	—	225	430
502.0100	CONCRETE MASONRY BRIDGES	CY	324.2	48.7	75.0	72.7	46.9	568
502.3200	PROTECTIVE SURFACE TREATMENT	SY	732	—	—	—	—	732
502.3210	PIGMENTED SURFACE SEALER	SY	241	15	—	—	13	269
503.0137	PRESTRESSED GIRDER TYPE I 36W-INCH	LF	1180	—	—	—	—	1180
505.0400	BAR STEEL REINFORCEMENT HS STRUCTURES	LB	—	2620	3420	3420	2620	12,080
505.0600	BAR STEEL REINFORCEMENT HS COATED STRUCTURES	LB	66,750	3040	12,090	11,720	2480	96,080
506.2605	BEARING PADS ELASTOMERIC NON-LAMINATED	EACH	—	5	10	10	5	30
506.4000	STEEL DIAPHRAGMS B-5-465	EACH	16	—	—	—	—	16
516.0500	RUBBERIZED MEMBRANE WATERPROOFING	SY	—	10	—	—	10	20
550.1100	PILING STEEL HP 10-INCH X 42 LB	LF	—	760	—	—	720	1480
550.1120	PILING STEEL HP 12-INCH X 53 LB	LF	—	—	1120	1120	—	2240
604.0600	SLOPE PAVING SELECT CRUSHED MATERIAL	SY	—	320	—	—	350	670
612.0406	PIPE UNDERDRAIN WRAPPED 6-INCH	LF	—	70	—	—	70	140
614.0150	ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD	EACH	4	—	—	—	—	4
645.0111	GEOTEXTILE TYPE DF SCHEDULE A	SY	—	24	—	—	27	51
SPV.0090	REMOVING EXISTING STEEL PILING	LF	—	180	150	225	180	735
	NON-BID ITEMS							
	FILLER	SIZE	—	—	—	—	—	1/2"

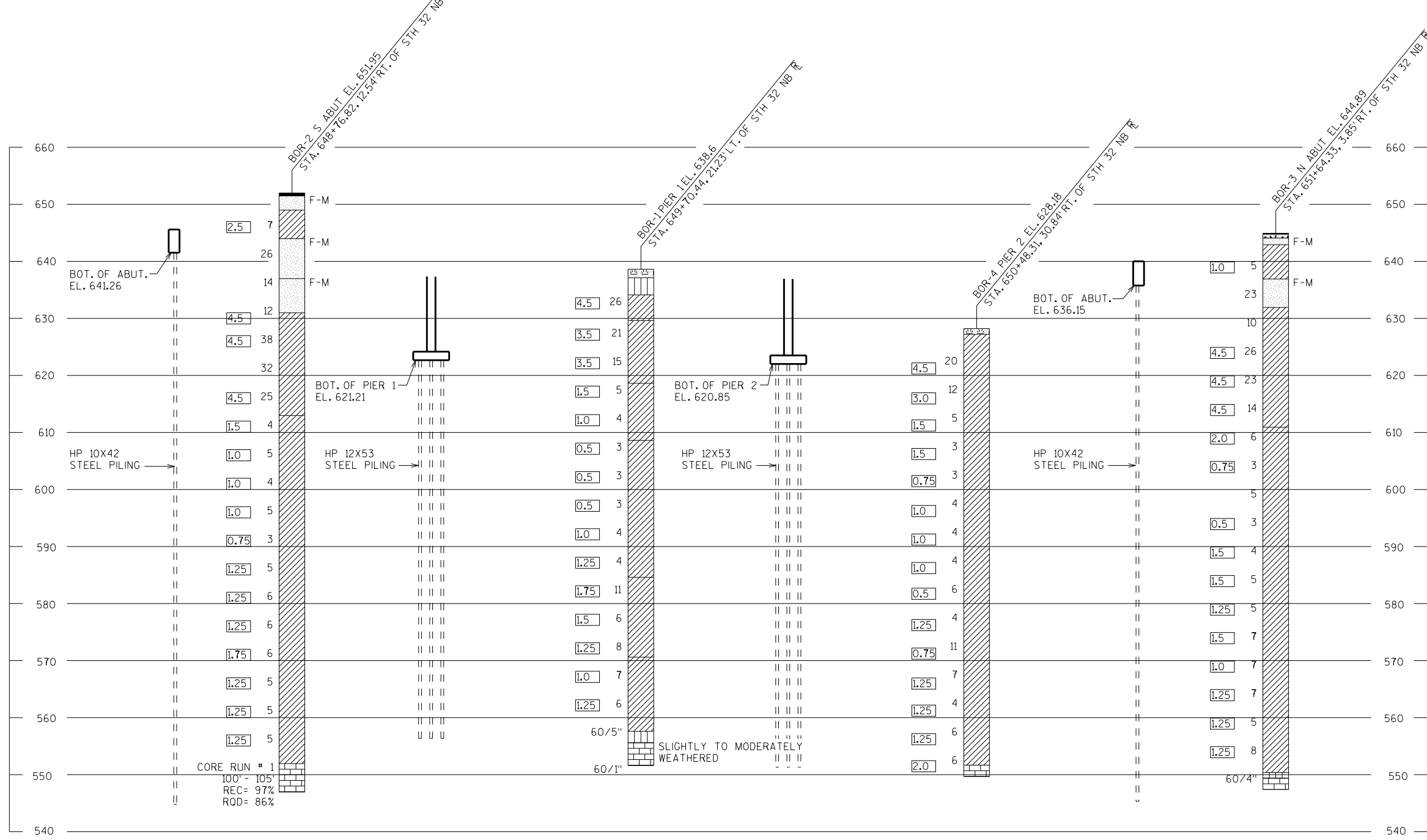
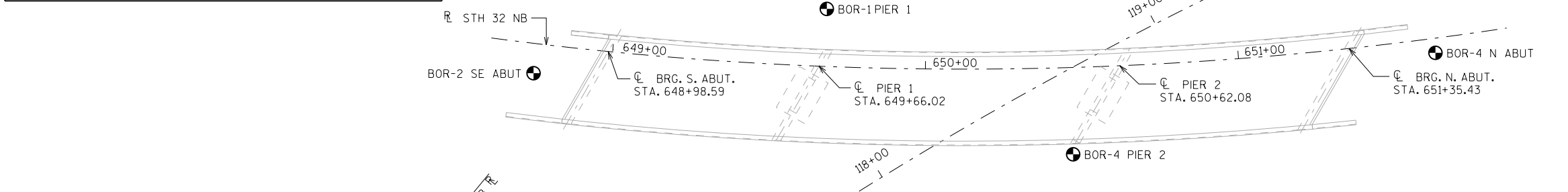
GENERAL NOTES

- DRAWINGS SHALL NOT BE SCALED.
- BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2" CLEAR UNLESS OTHERWISE SHOWN OR NOTED.
- THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE.
- BEVEL EXPOSED EDGES OF CONCRETE 3/4" UNLESS OTHERWISE NOTED.
- THE UPPER LIMITS OF "EXCAVATION FOR STRUCTURES BRIDGES B-5-465" SHALL BE THE EXISTING GROUNDLINE.
- AT THE BACK FACE OF ABUTMENT ALL VOLUME WHICH CANNOT BE PLACED BEFORE ABUTMENT CONSTRUCTION AND IS NOT OCCUPIED BY THE NEW STRUCTURE SHALL BE BACKFILLED WITH STRUCTURE BACKFILL TYPE A.
- EXCAVATION BELOW THE ABUTMENT AND ABUTMENT BEDDING MATERIALS REQUIRES ENGINEER APPROVAL. GEOTEXTILE SHALL BE SET AT THE BOTTOM OF EXCAVATION AND EXTEND 2'-0" ABOVE BOTTOM OF ABUTMENT.
- THE QUANTITY FOR BACKFILL STRUCTURE IS CALCULATED BASED ON THE DETAIL SHOWN IN THE PLANS.
- ELASTOMERIC BEARING PADS NEED NOT BE INDIVIDUALLY MOLDED PROVIDED THE CUT EDGES ARE SMOOTH AND TRUE.
- PROTECTIVE SURFACE TREATMENT TO BE APPLIED TO THE ENTIRE EXPOSED TOP OF DECK SURFACE AND TO THE VERTICAL AND HORIZONTAL SURFACES OF THE PAVING NOTCHES AT ABUTMENT DIAPHRAGMS.
- PIGMENTED SURFACE SEALER TO BE APPLIED TO THE FRONT FACE AND THE TOP OF THE PARAPETS, INCLUDING PARAPETS ON WINGS.
- THE SLOPE OF THE FILL IN FRONT OF THE ABUTMENTS SHALL BE COVERED WITH SLOPE PAVING MATERIAL TO THE EXTENT SHOWN ON SHEET 1 AND THE ABUTMENT DETAILS.
- THE HAUNCH CONCRETE QUANTITY IS BASED ON THE AVERAGE HAUNCH SHOWN ON THE "36W PRESTRESSED GIRDER DETAILS 2" SHEET.
- AT ABUTMENTS, HP 12X53 STEEL PILING MAY BE USED IN LIEU OF HP 10X42 STEEL PILING. PAYMENT SHALL BE BASED ON BID PRICE FOR HP 10X42 STEEL PILING.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-465			
		DRAWN BY DLM/WWR	PLANS CK'D. DLM
CROSS SECTION & QUANTITIES			SHEET 2

BORING #	DATE COMPLETED	NORTHING (Y)	EASTING (X)
1	5/25/2021	538095	88223
2	5/26/2021	538004	88193
3	5/27/2021	538255	88334
4	6/02/2021	538139	88303

BORINGS COMPLETED BY: WISDOT
 REPORT COMPLETED BY: WISDOT
 ALL COORDINATES REFERENCED TO WCCS NAD 83(91) BROWN COUNTY
 COORDINATES COLLECTED USING NON-SURVEY GRADE EQUIPMENT



STATE PROJECT NUMBER
4085-62-71

MATERIAL SYMBOLS

ASPHALT	TOPSOIL	PEAT
CONCRETE	FILL	GRAVEL
SAND	CLAY	SILT
BOULDERS OR COBBLES	LIMESTONE	BEDROCK (UNKNOWN)
SHALE	SANDSTONE	IGNEOUS/META

LEGEND OF BORING

(1) UNCONFINED STRENGTH, AS DETERMINED BY A POCKET PENETROMETER (TSF)
 (2) UNLESS OTHERWISE SPECIFIED THE SPT 'N' VALUE IS BASED ON AASHTO T-206, STANDARD PENETRATION TEST. THE SPT 'N' VALUE PRESENTED HAS NOT BEEN CORRECTED FOR OVERBURDEN PRESSURE OR HAMMER EFFICIENCY.

GROUND WATER ELEVATION
 ∇ AT TIME OF DRILLING
 ▼ END OF DRILLING
 ▽ AFTER DRILLING

ABBREVIATIONS
 F-FINE M-MEDIUM C-COARSE ST-SHELBY TUBE

SUBSURFACE EXPLORATION FOR FOUNDATION DESIGN AND BIDDERS INFORMATION

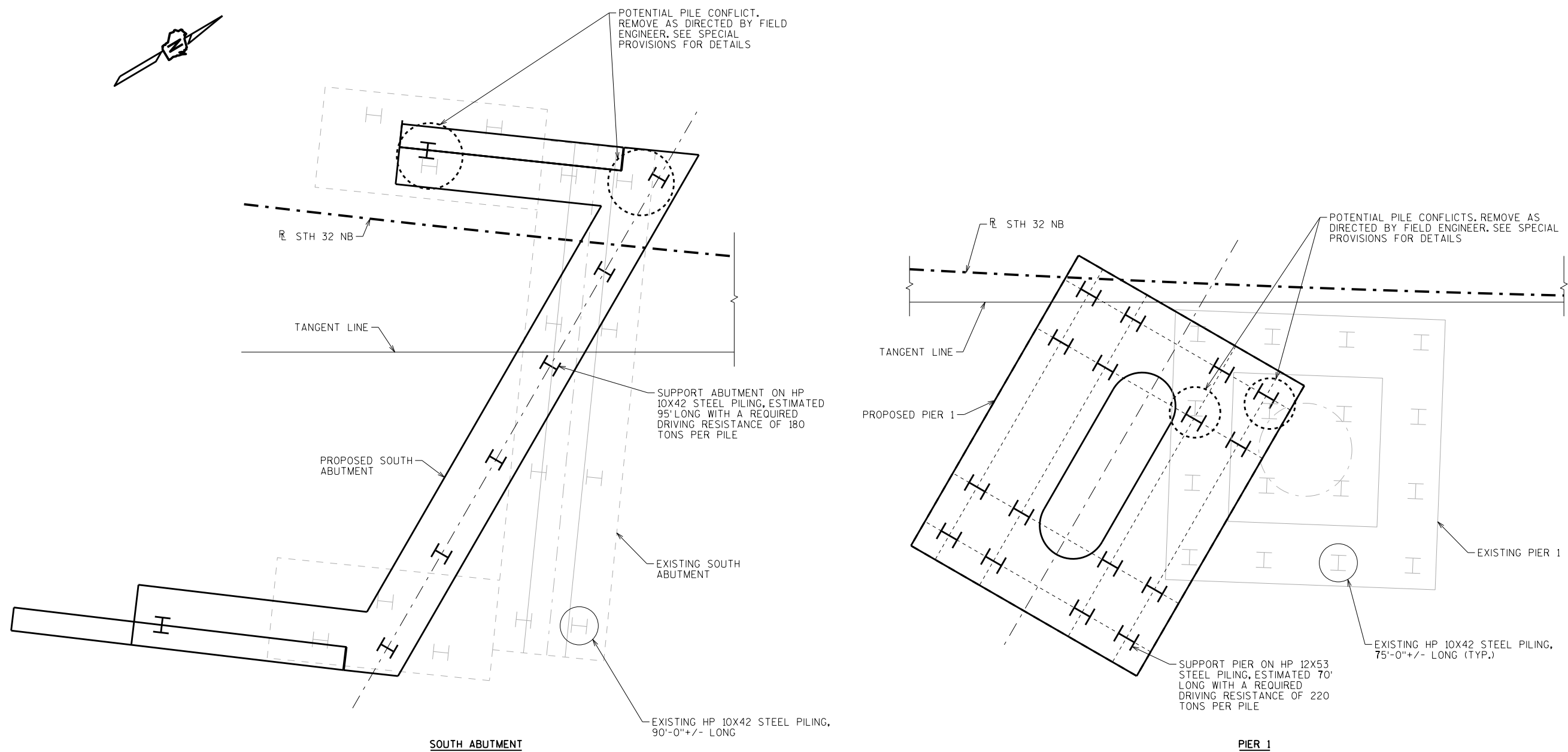
BORINGS WERE COMPLETED AT POINTS APPROXIMATELY AS INDICATED ON THIS DRAWING TO OBTAIN INFORMATION CONCERNING THE CHARACTER OF SUBSURFACE MATERIALS FOUND AT THE SITE. BECAUSE THE INVESTIGATED DEPTHS ARE LIMITED AND THE AREA OF THE BORINGS IS VERY SMALL IN RELATION TO THE ENTIRE SITE, THE WISCONSIN DEPARTMENT OF TRANSPORTATION DOES NOT WARRANT SIMILAR SUBSURFACE CONDITIONS BELOW, BETWEEN, OR BEYOND THESE BORINGS. VARIATIONS IN SOIL CONDITIONS SHOULD BE EXPECTED AND FLUCTUATIONS IN GROUNDWATER LEVELS MAY OCCUR.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-465			
DRAWN BY: WWR		PLANS CKD: DLM	
SUBSURFACE EXPLORATION		SHEET 3	

8

8

SCALE =



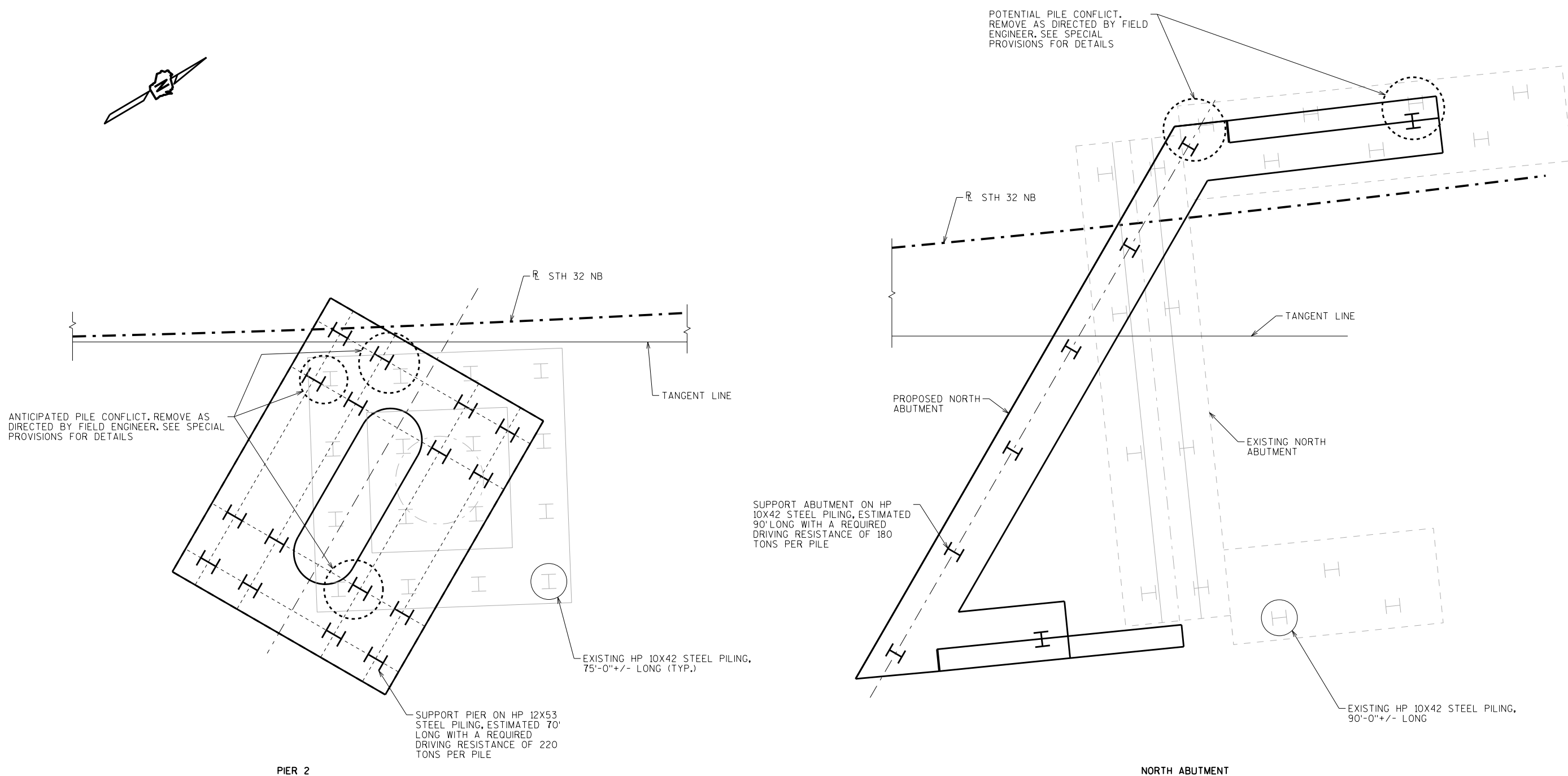
EXISTING SUBSTRUCTURE PILE PLAN (PROPOSED PILES SHOWN)

LOCATIONS ARE APPROXIMATE AND ESTIMATED BASED ON ORIGINAL STRUCTURE PLANS AND SURVEY DATA. EXTENTS AND OTHER LOCATIONS SHALL BE CONFIRMED BY FIELD ENGINEER. SEE "SOUTH ABUTMENT" AND "PIER 1 DETAILS" SHEETS FOR PILE PLAN LAYOUTS.

8

8

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-05-465			
DRAWN BY		WWR	PLANS CK'D. DLM
PILE REMOVAL SOUTH ABUT. & PIER 1			SHEET 4



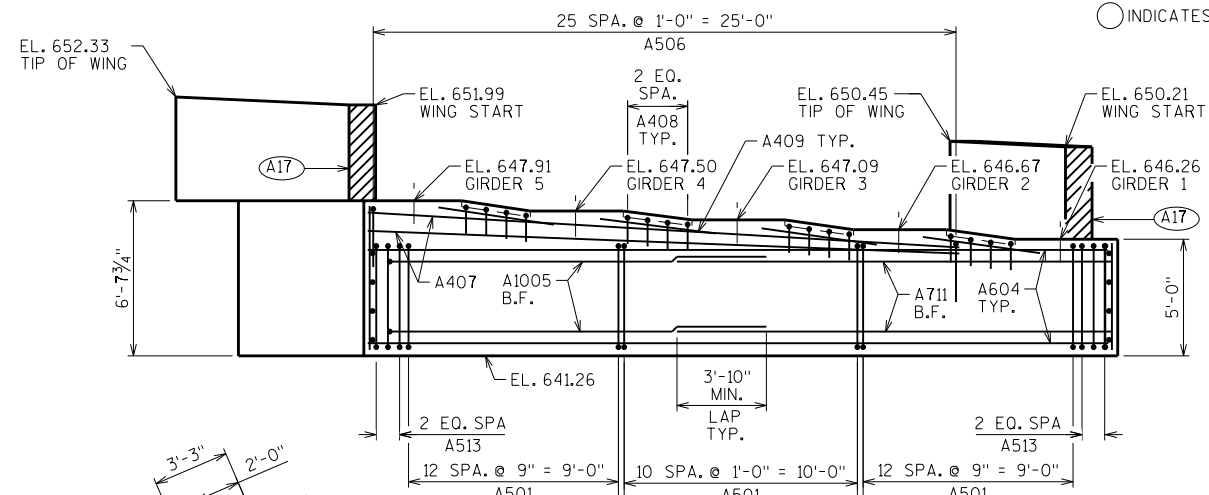
EXISTING SUBSTRUCTURE PILE PLAN (PROPOSED PILES SHOWN)

LOCATIONS ARE APPROXIMATE AND ESTIMATED BASED ON ORIGINAL STRUCTURE PLANS AND SURVEY DATA. EXTENTS AND OTHER LOCATIONS SHALL BE CONFIRMED BY FIELD ENGINEER. SEE "NORTH ABUTMENT" AND "PIER 2 DETAILS" SHEETS FOR PILE PLAN LAYOUTS.

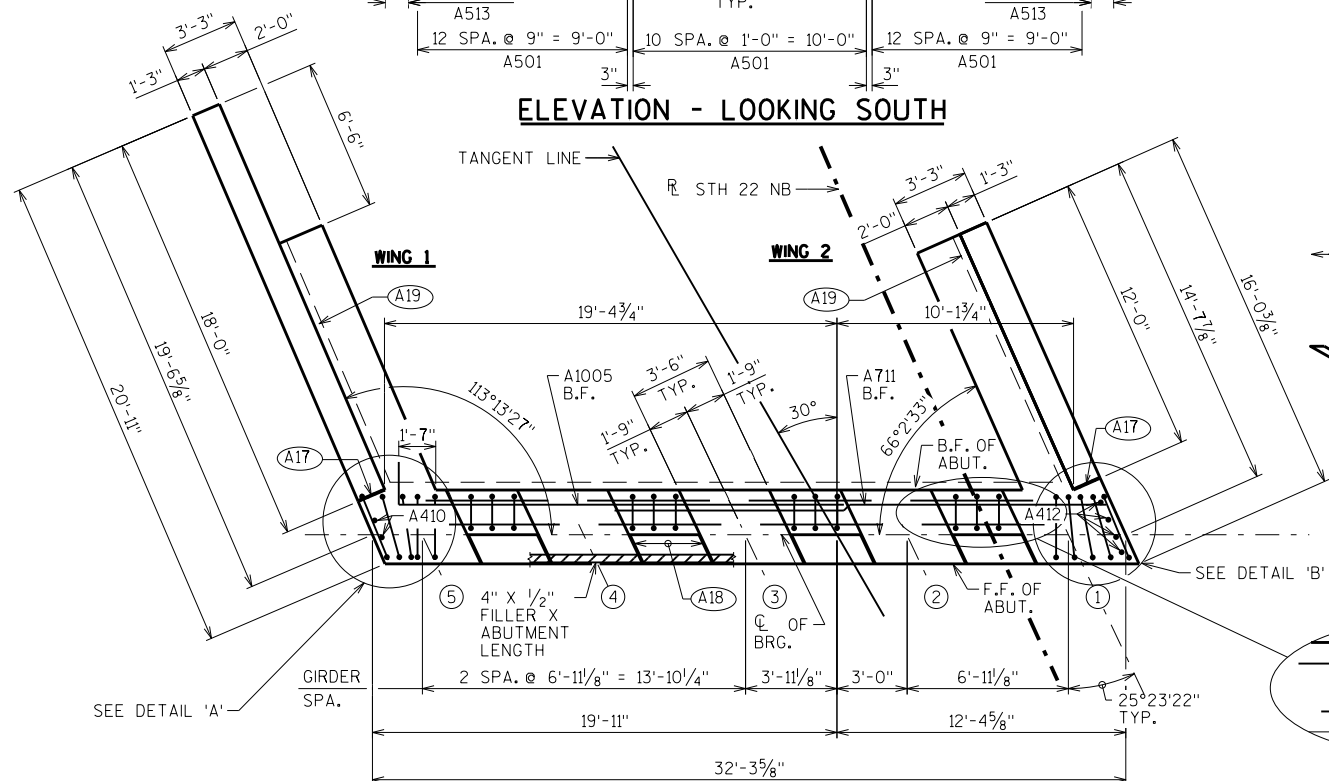
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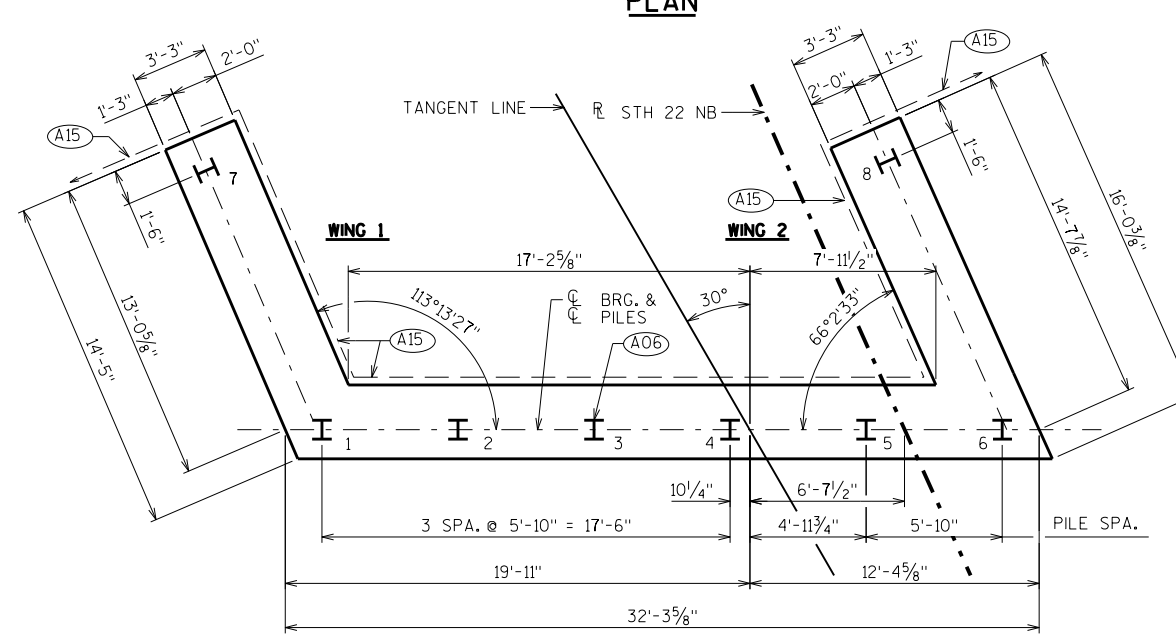
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-465			
DRAWN BY		WWR	PLANS CK'D. DLM
PILE REMOVAL NORTH ABUT. & PIER 2			SHEET 5



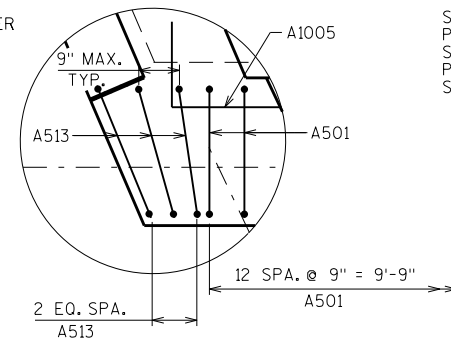
ELEVATION - LOOKING SOUTH



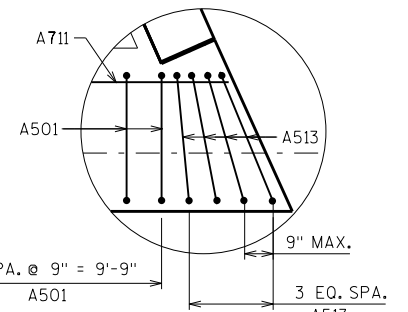
PLAN



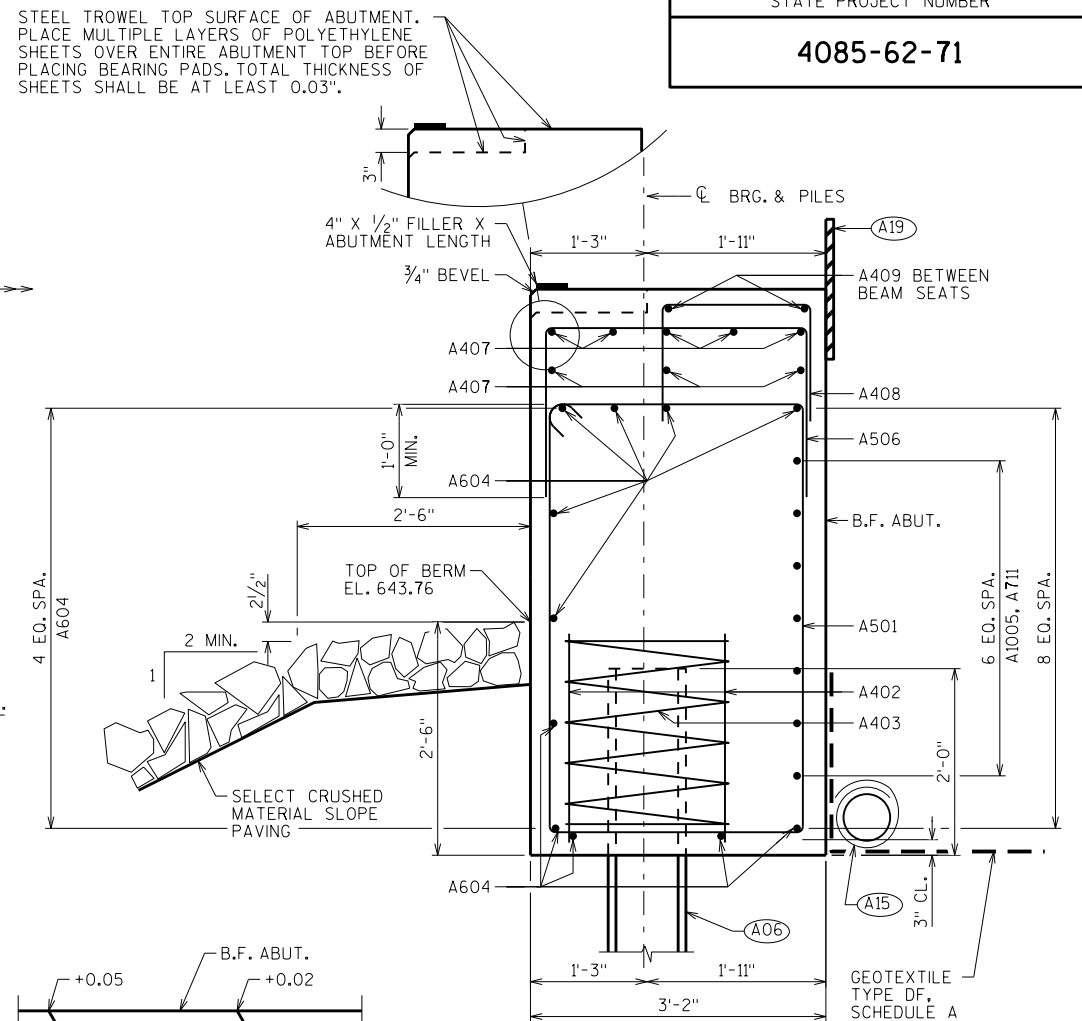
PILE PLAN



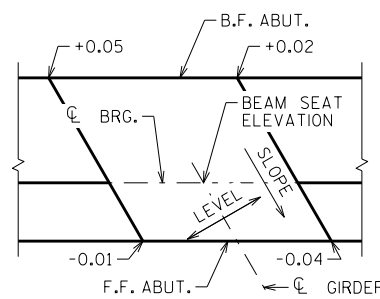
DETAIL 'A'



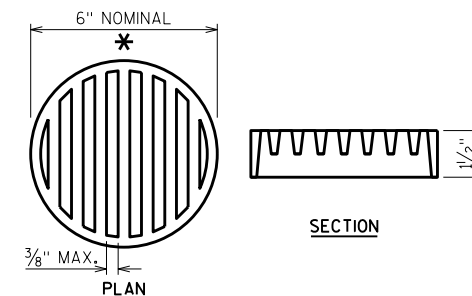
DETAIL 'B'



SECTION THRU BODY



SLOPED BEAM SEAT DETAIL



RODENT SHIELD DETAIL

* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

(A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 95'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE.

(A15) PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.

(A17) 1/2" FILLER (INCLUDED IN WING LENGTH); SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE), EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.

(A18) 3/4" CORK FILLER UP VERT. BEAM SEAT FACES THAT RUN PARELELL WITH GIRDER.

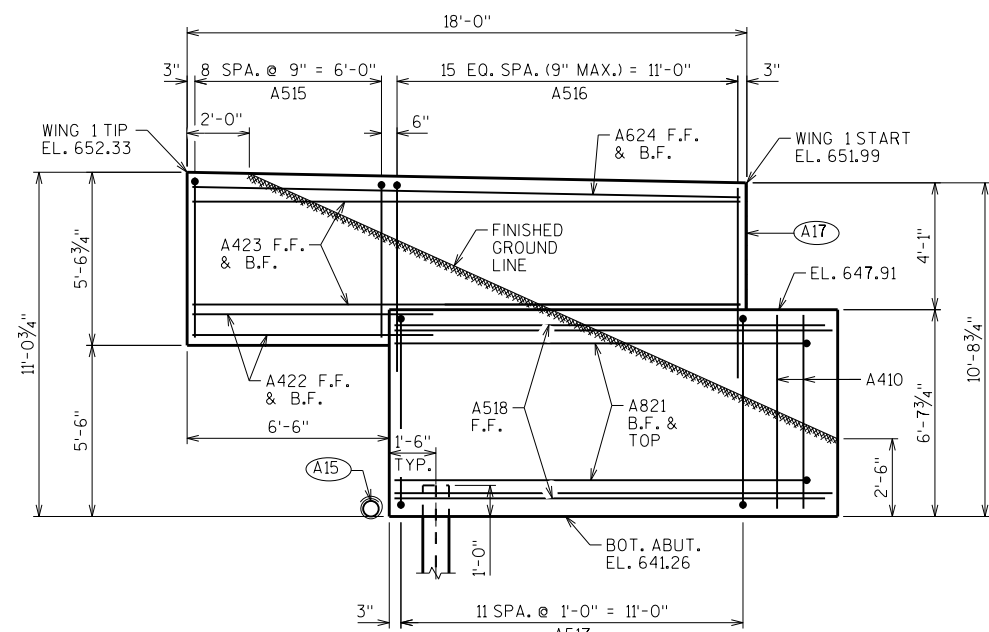
(A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-465			
DRAWN BY		DDS	PLANS CK'D. DLM
SOUTH ABUTMENT		SHEET 6	

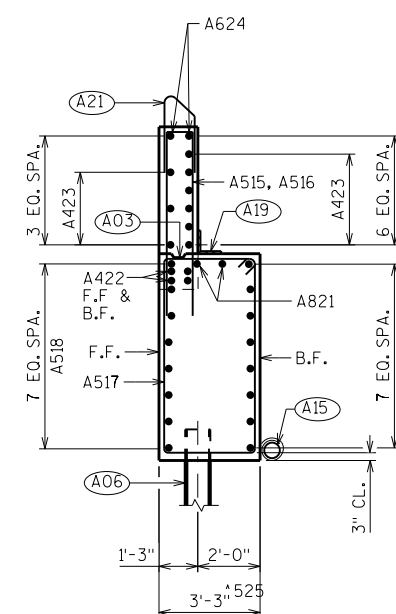
BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

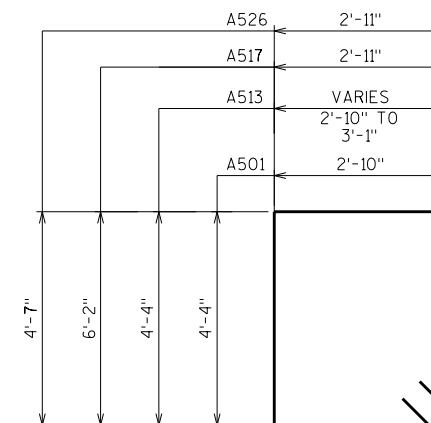
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
A501		37	15'-0"	X		BODY - STIRRUPS
A402		12	2'-3"			PILES - 2 PER BODY PILE
A403		6	28'-0"	X		PILES - 1 PER BODY PILE
A604		11	31'-11"			BODY - HORIZ. - F.F. TOP & BOTTOM
A1005		7	21'-2"	X		BODY - HORIZ. - B.F. - WING 1 END
A506		26	8'-2"	X		BODY - VERT.
A407		8	25'-5"			BODY - HORIZ.
A408		12	3'-11"	X		BODY - VERT. - BTWN. BEAM SEATS
A409		8	5'-4"			BODY - HORIZ.
A410		2	6'-3"			BODY - VERT. - END OF BODY - WING 1 END
A711		7	14'-7"			BODY - HORIZ. - B.F. WING 2 END
A412		4	4'-7"			BODY - VERT. - END OF BODY - WING 2 END
A513		6	15'-3"	X	▲	BODY - STIRRUPS - AT CORNERS
A414	X	12	2'-0"			WING 2 - SURFACE DRAIN ANCHORS
A515	X	9	10'-8"	X		WING 1 - VERT.
A516	X	16	13'-0"	X		WING 1 - VERT.
A517	X	12	18'-10"	X		WING 1 - STIRRUP
A518	X	8	14'-1"			WING 1 - HORIZ. - F.F.
		NOT USED				
		NOT USED				
A821	X	10	14'-11"	X		WING 1 - HORIZ. - B.F. & TOP
A422	X	4	7'-9"			WING 1 - HORIZ. - OVERHANG - F.F. & B.F.
A423	X	9	17'-8"			WING 1 - HORIZ. - UPPER - F.F. & B.F.
A624	X	2	17'-8"			WING 1 - HORIZ. - TOP - F.F. & B.F.
A525	X	17	12'-10"	X		WING 2 - VERT.
A526	X	12	15'-2"	X		WING 2 - STIRRUP
A527	X	6	15'-8"			WING 2 - HORIZ. - F.F.
		NOT USED				
		NOT USED				
A530	X	9	13'-0"			WING 2 - HORIZ. - B.F. & TOP
A431	X	9	11'-8"			WING 2 - HORIZ.
A632	X	2	11'-8"			WING 2 - HORIZ. - TOP, F.F. & B.F.



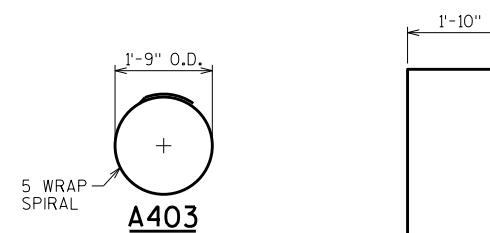
WING 1
LOOKING AT F.F.



SECTION THRU WING 1

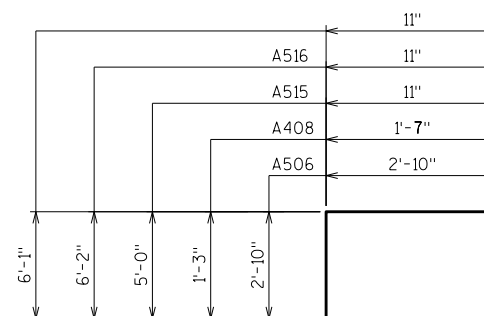


A501, A513, A517, A526



A403

A1005

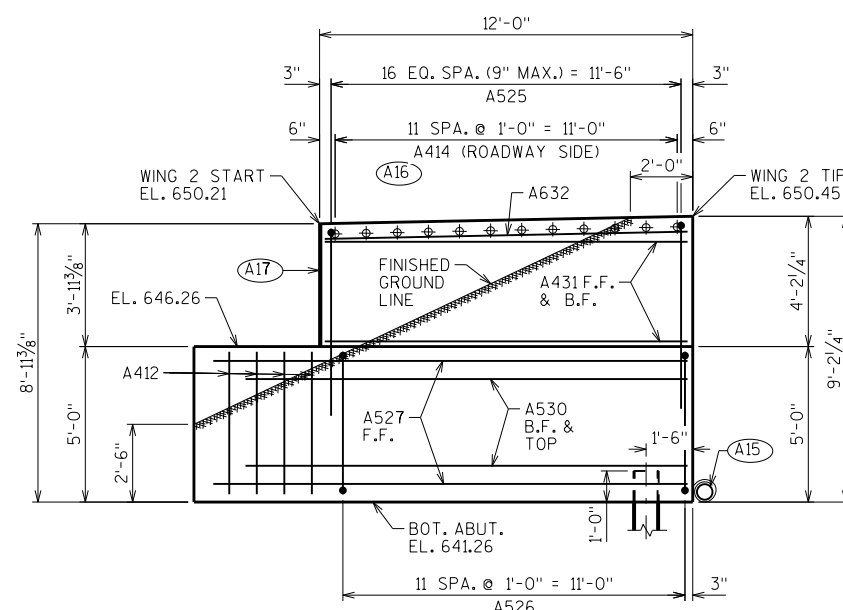


A506, A408, A515, A516, A525

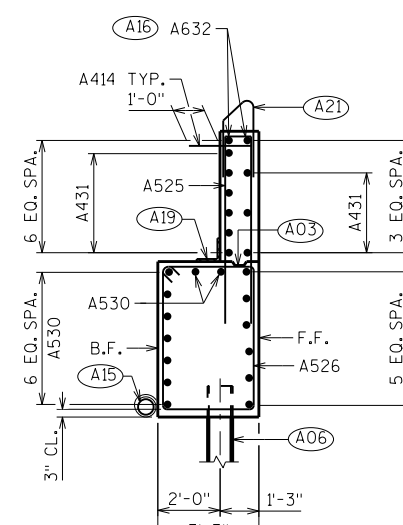
▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

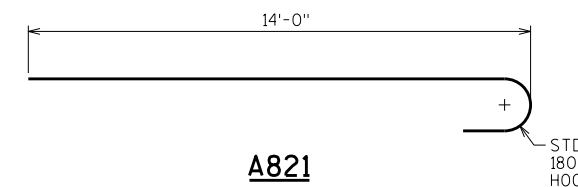
BAR MARK	NO. REQ'D.	LENGTH
A513	2 SERIES OF 3	15'-0" TO 15'-6"



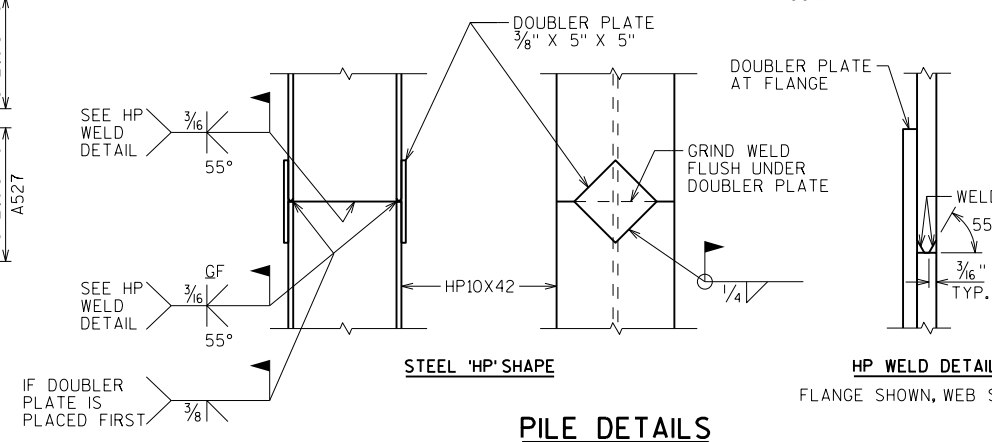
WING 2
LOOKING AT F.F.



SECTION THRU WING 2



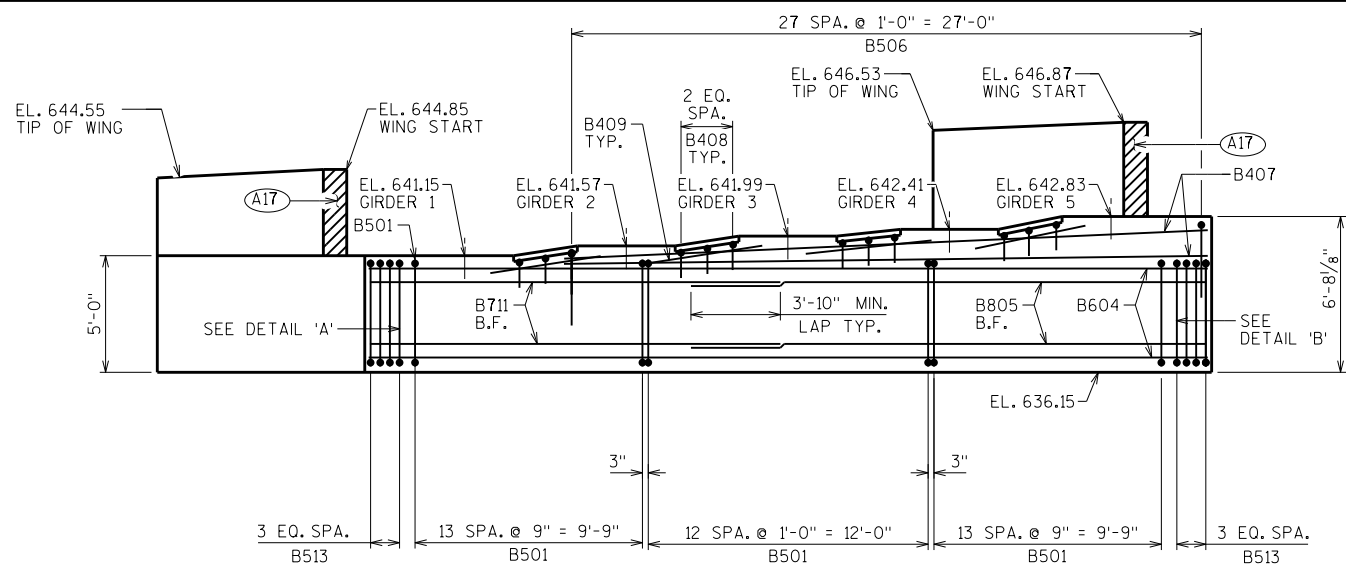
A821



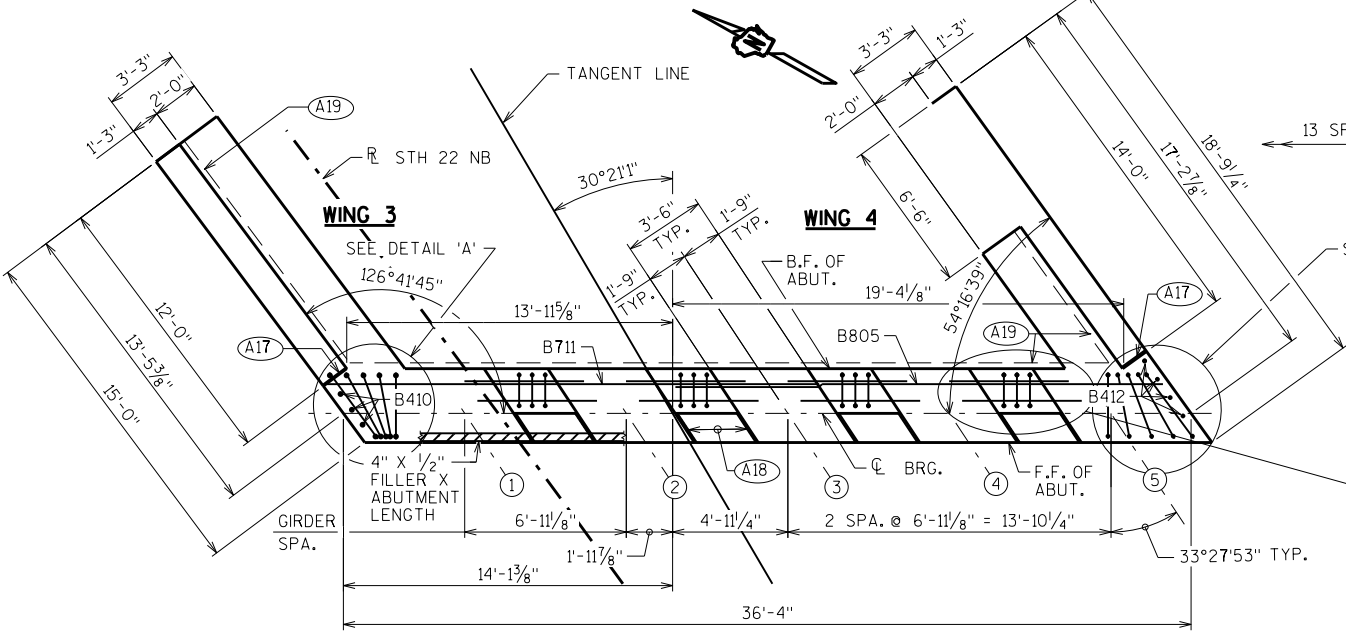
PILE DETAILS

- (A03) OPTIONAL CONST. JOINT: KEYWAY FORMED BY BEVELED 2 X 6. (18" RMW @ B.F. & 3/4" "V" GROOVE @ F.F. IF JOINT IS USED).
- (A06) SUPPORT ABUTMENT ON HP 10 X 42 STEEL PILING, ESTIMATED 95'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH). SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A16) A414 BARS SPACED @ 1'-0" CTRS. EMBED 1'-0" INTO WING CONC. LOCATE 3" DOWN FROM TOP OF WING @ BACKFACE TO 6" DOWN @ WING TIP.
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH): SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE). EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.
- (A21) FOR PPT. BARS & DIMENSIONS SEE PARAPET SHEET.

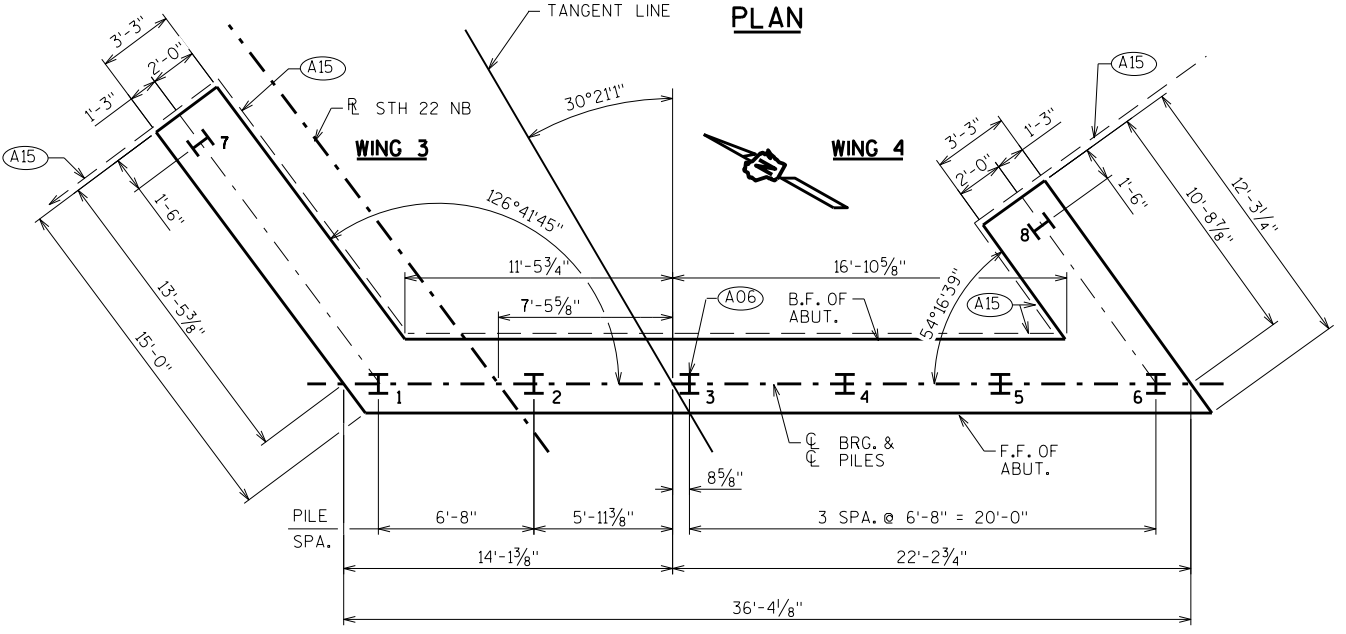
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-465			
DRAWN BY		DDS	PLANS CK'D. DLM
SOUTH ABUTMENT DETAILS			SHEET 7



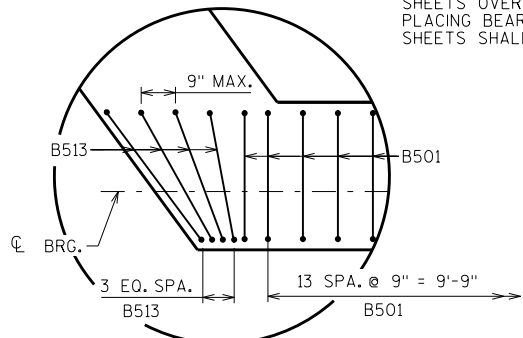
ELEVATION - LOOKING NORTH



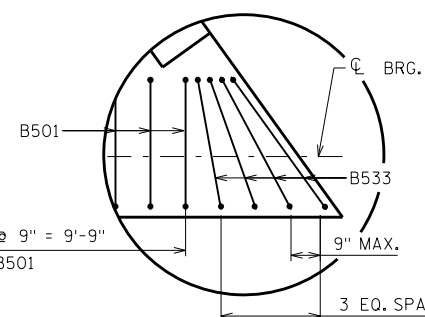
PLAN



PILE PLAN

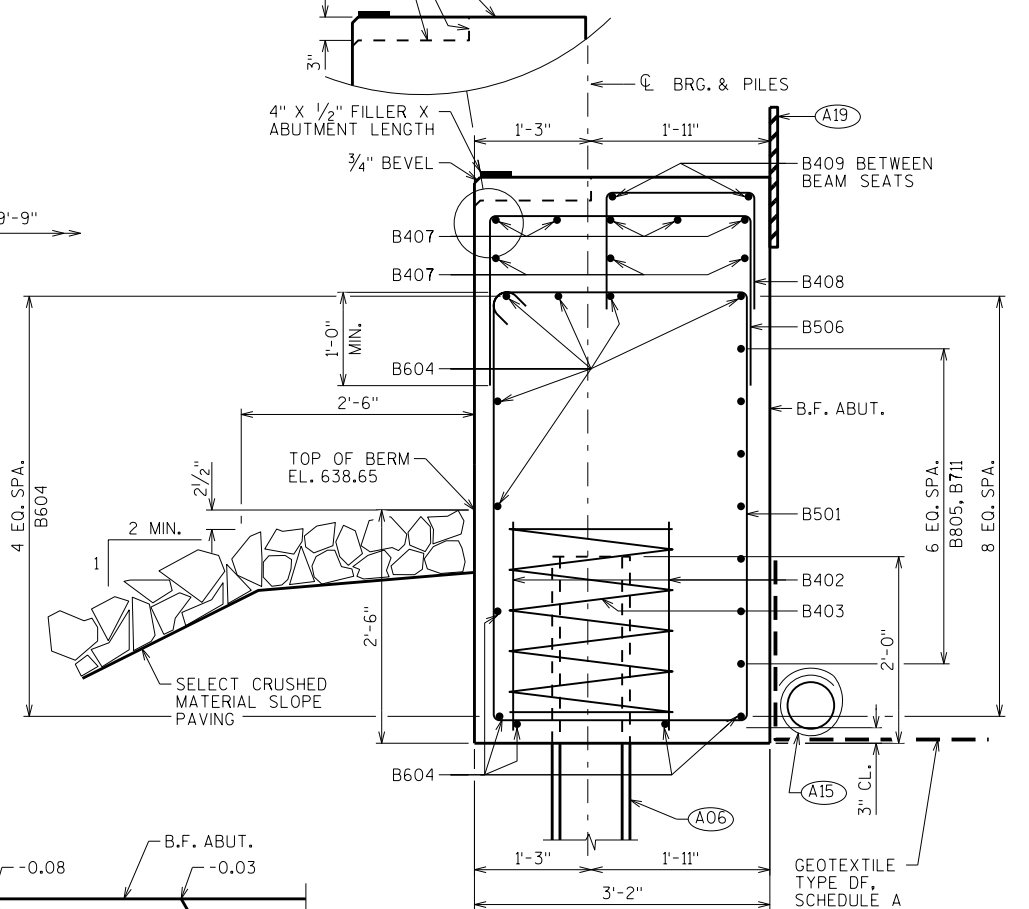


DETAIL 'A'

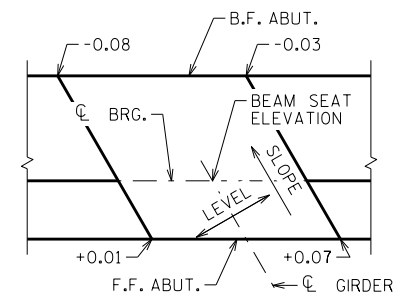


DETAIL 'B'

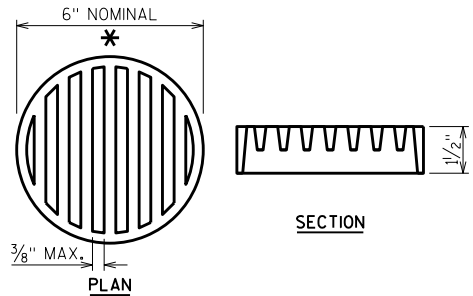
STEEL TROWEL TOP SURFACE OF ABUTMENT. PLACE MULTIPLE LAYERS OF POLYETHYLENE SHEETS OVER ENTIRE ABUTMENT TOP BEFORE PLACING BEARING PADS. TOTAL THICKNESS OF SHEETS SHALL BE AT LEAST 0.03".



SECTION THRU BODY



SLOPED BEAM SEAT DETAIL



RODENT SHIELD DETAIL

○ INDICATES GIRDER NUMBER

* DIMENSIONS ARE APPROXIMATE. THE GRATE IS SIZED TO FIT INTO A PIPE COUPLING. ORIENT SO SLOTS ARE VERTICAL.

THE RODENT SHIELD, PIPE COUPLING AND SCREWS SHALL BE CONSIDERED INCIDENTAL TO THE BID ITEM "PIPE UNDERDRAIN WRAPPED 6-INCH".

THE RODENT SHIELD SHALL BE A PVC GRATE SIMILAR TO THIS DETAIL. THE GRATE IS COMMERCIALY AVAILABLE AS A FLOOR STRAINER. A PIPE COUPLING IS REQUIRED FOR THE ATTACHMENT OF THIS SHIELD TO THE EXPOSED END OF THE PIPE UNDERDRAIN. THE SHIELD SHALL BE FASTENED TO THE PIPE COUPLING WITH TWO OR MORE NO. 10 X 1-INCH STAINLESS STEEL SHEET METAL SCREWS.

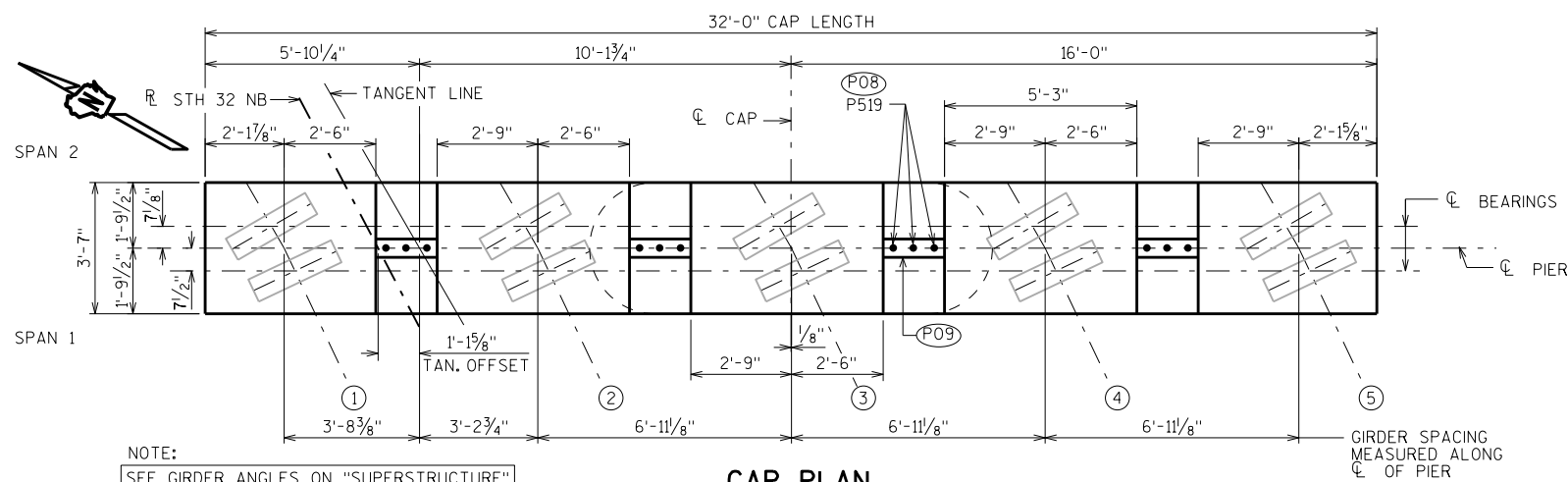
- (A06) SUPPORT ABUTMENT ON HP 10 x 42 STEEL PILING, ESTIMATED 90'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 180 TONS PER PILE.
- (A15) PIPE UNDERDRAIN WRAPPED (6-INCH), SLOPE 0.5% MIN. TO SUITABLE DRAINAGE. RODENT SHIELD REQUIRED.
- (A17) 1/2" FILLER (INCLUDED IN WING LENGTH); SEAL ALL EXPOSED HORIZ. & VERT. SURFACES OF 1/2" FILLER WITH NON-STAINING GRAY NON-BITUMINOUS JOINT SEALER. (1" DEEP AND HOLD 1/8" BELOW SURFACE OF CONCRETE), EXTEND SEALER 3" BELOW GUTTER LINE AT INSIDE FACE.
- (A18) 3/4" CORK FILLER UP VERT. BEAM SEAT FACES THAT RUN PARELLL WITH GIRDER.
- (A19) 18" (RMW) RUBBERIZED MEMBRANE WATERPROOFING SEAL ALL HORIZ. & VERT. JOINTS AT BACKFACE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-465			
		DRAWN BY	PLANS CK'D.
		DDS	DLM
NORTH ABUTMENT		SHEET 8	

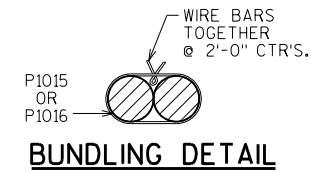
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8

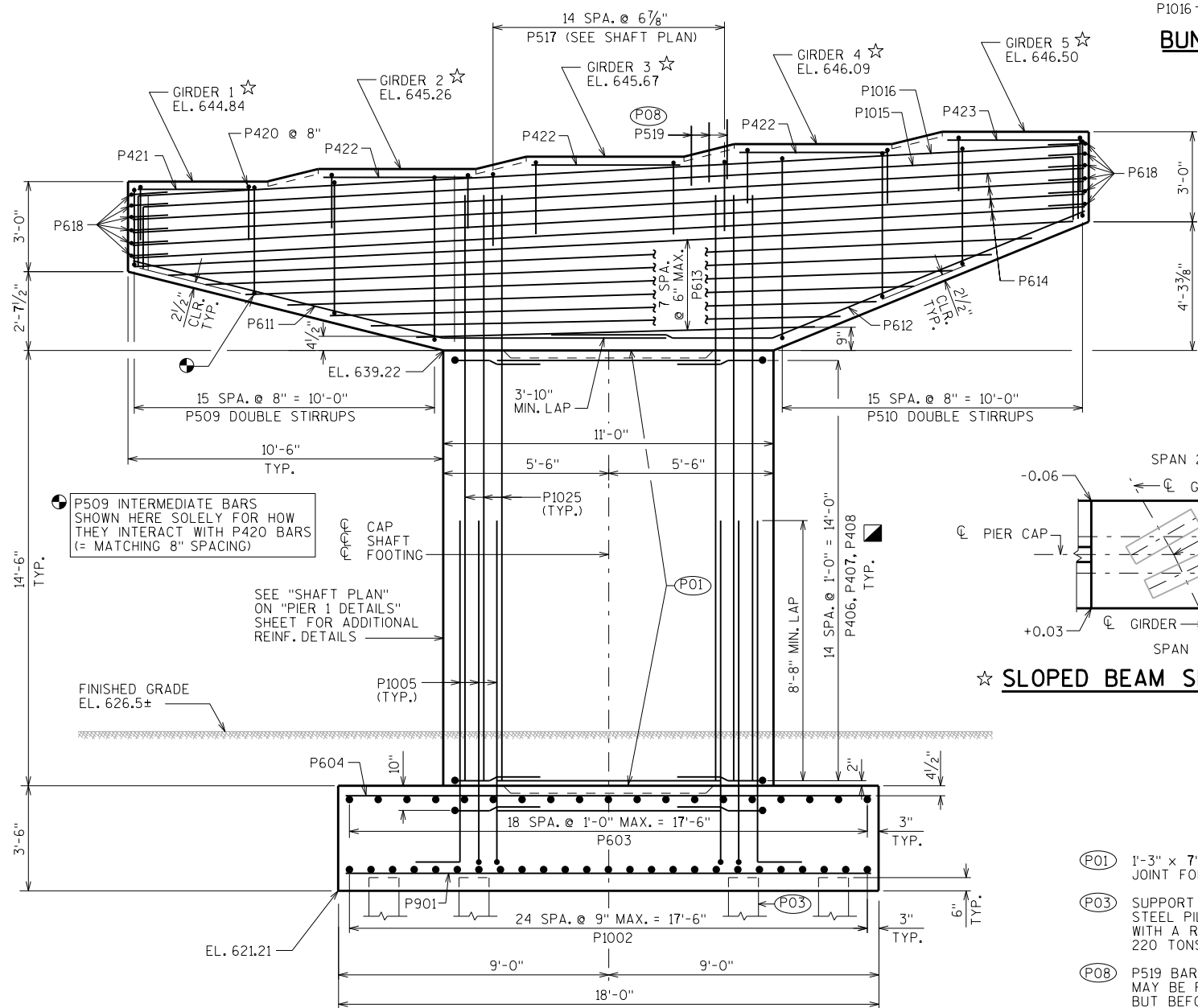
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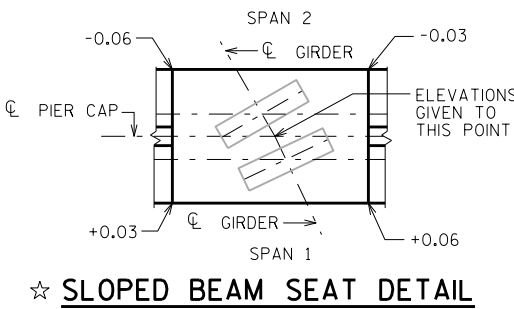
CAP PLAN



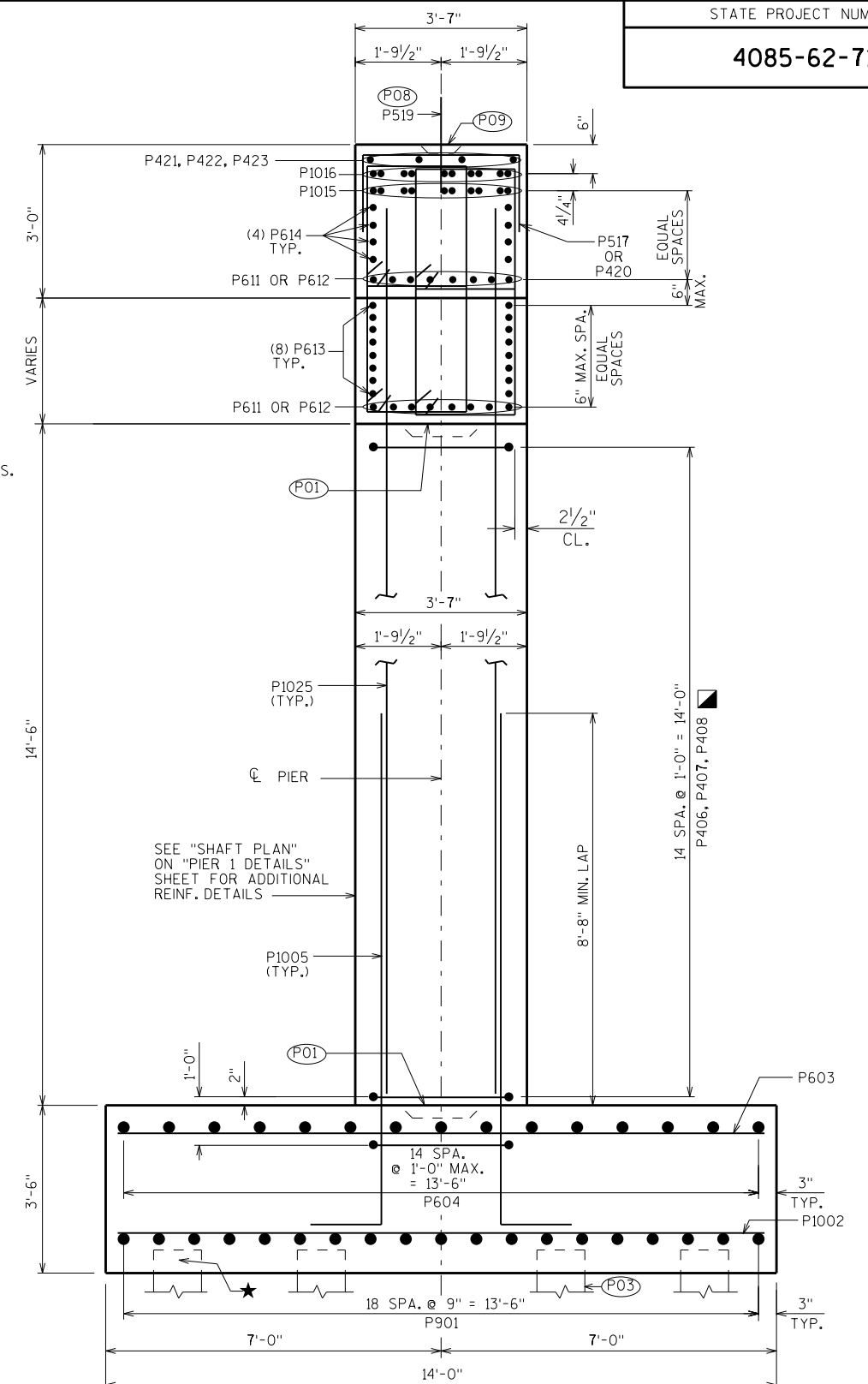
BUNDLING DETAIL



ELEVATION



☆ SLOPED BEAM SEAT DETAIL



END VIEW

- (P01) 1'-3" x 7'-0" x 4" CONST. JOINT FORMED BY BEVELED KEYWAY.
- (P03) SUPPORT PIER ON HP 12 x 53 STEEL PILING, ESTIMATED 70'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE.
- (P08) P519 BARS @ 1'-0" CTRS. BETWEEN BEAM SEATS. MAY BE PLACED AFTER CONCRETE IS POURED BUT BEFORE INITIAL SET HAS TAKEN PLACE. (EMBED 1'-0" INTO CONC.)
- (P09) KEYED CONST. JOINT-FORMED BY BEVELED 2 x 6 BETWEEN BEAM SEATS.

- SEE "SHAFT PLAN" ON "PIER 1 DETAILS" SHEET FOR TIE BAR DETAILS
- INDICATES GIRDER NUMBER
- ★ SEE "PILE UPLIFT DETAIL" ON "PIER 1 DETAILS" SHEET FOR LOCATIONS OF UPLIFT HAIRPIN BARS.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-465			
DRAWN BY		PLANS CK'D.	DLM
WWR		DLM	
PIER 1			SHEET 10

BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

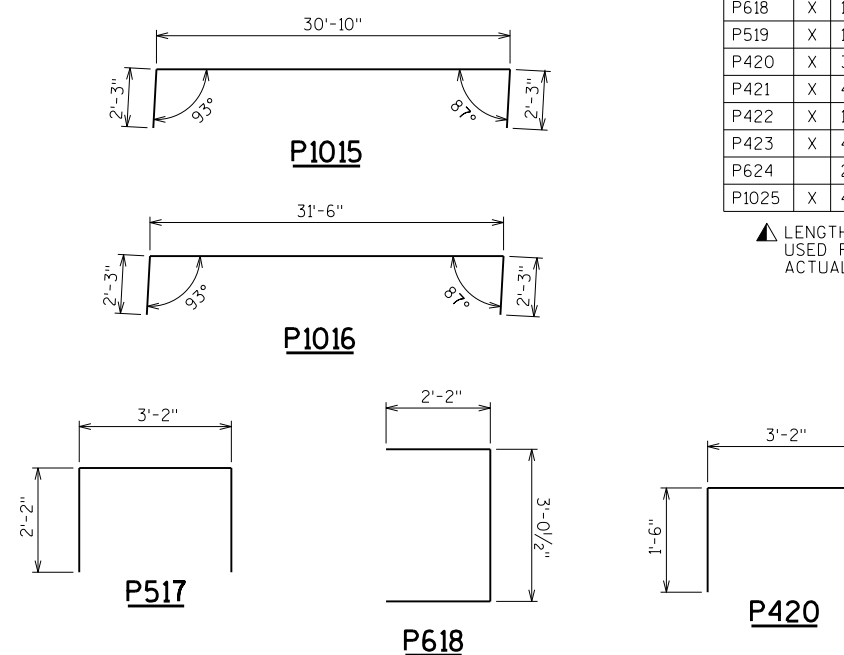
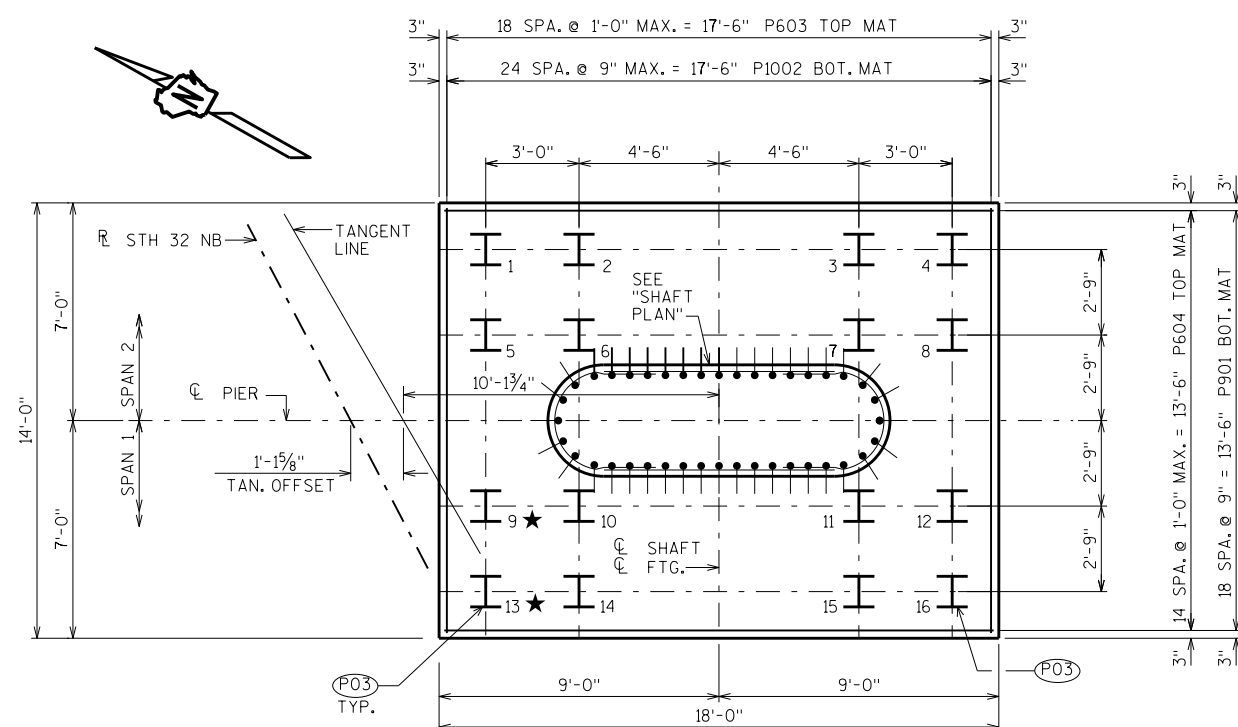
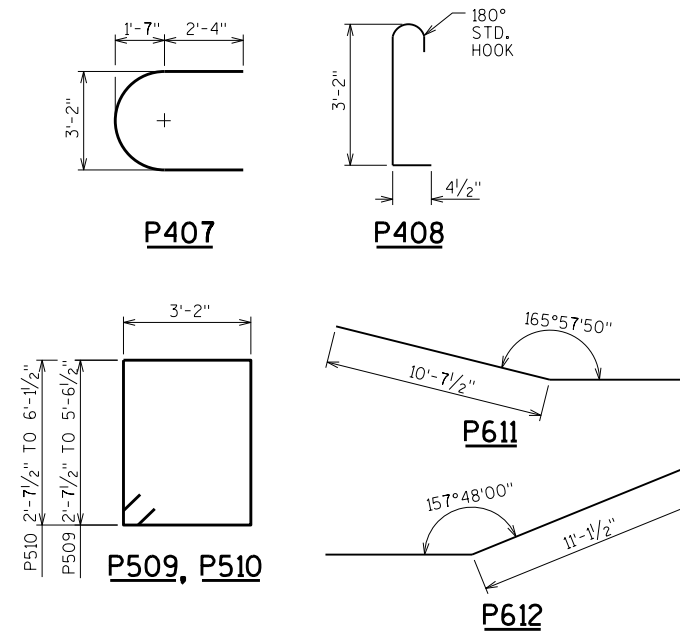
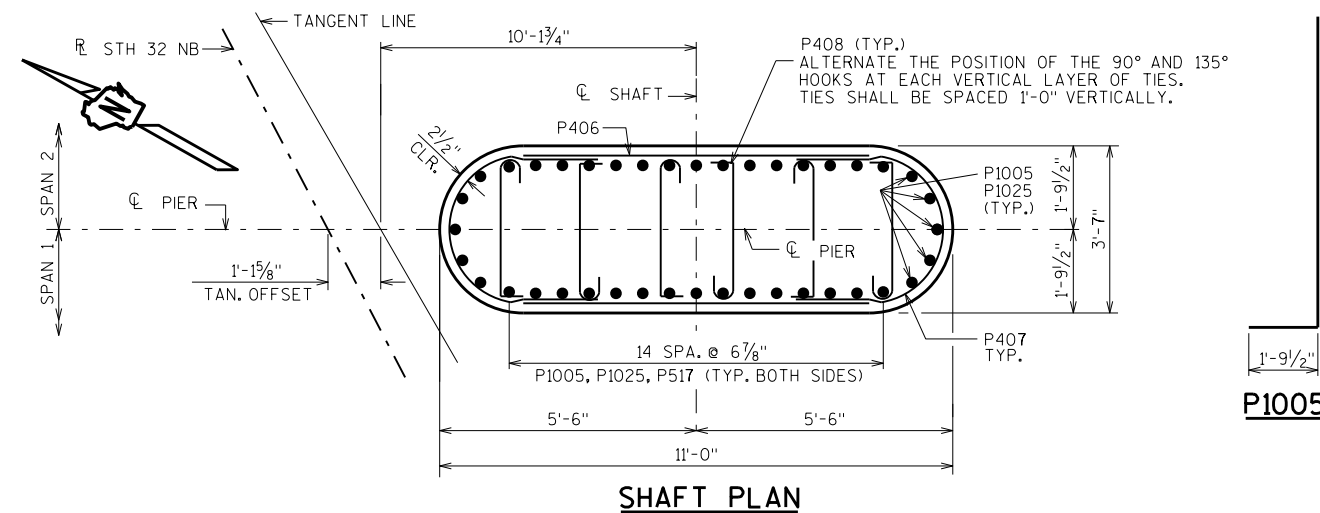
BAR MARK	COAT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
P901		19	17'-8"			FOOTING-HORIZ. BOT.
P1002		25	13'-8"			FOOTING-HORIZ. BOT.
P603		19	13'-8"			FOOTING-HORIZ. TOP
P604		15	17'-8"			FOOTING-HORIZ. TOP
P1005	X	40	13'-2"	X		FOOTING/SHAFT-VERT.
P406	X	32	7'-5"			FOOTING/SHAFT-HORIZ.
P407	X	32	9'-8"	X		FOOTING/SHAFT-HORIZ.
P408	X	90	4'-1"	X		SHAFT-HORIZ. TIE BARS
P509	X	32	15'-2"	X	▲	CAP-VERT. STIRRUPS
P510	X	32	15'-9"	X	▲	CAP-VERT. STIRRUPS
P611	X	8	18'-1"	X		CAP-HORIZ. BOT.
P612	X	8	18'-8"	X		CAP-HORIZ. BOT.
P613	X	16	22'-4"		▲	CAP-HORIZ. SIDES (LOWER)
P614	X	8	31'-7"			CAP-HORIZ. SIDES (UPPER)
P1015	X	10	34'-9"	X		CAP-HORIZ. TOP
P1016	X	10	35'-5"	X		CAP-HORIZ. TOP
P517	X	15	7'-3"	X		CAP-VERT. U-BAR
P618	X	12	7'-1"	X		CAP-HORIZ. END U-BAR
P519	X	12	2'-0"			CAP-VERT. DOWEL
P420	X	30	6'-0"	X		CAP-VERT. U-BAR AT BEAM SEATS
P421	X	4	4'-4"			CAP-HORIZ.-BEAM SEAT 1
P422	X	12	4'-11"			CAP-HORIZ.-BEAM SEATS 2,3,4
P423	X	4	4'-6"			CAP-HORIZ.-BEAM SEAT 5
P624		2	6'-6"	X		FOOTING-UPLIFT BARS
P1025	X	40	19'-6"			SHAFT/CAP-VERT.

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

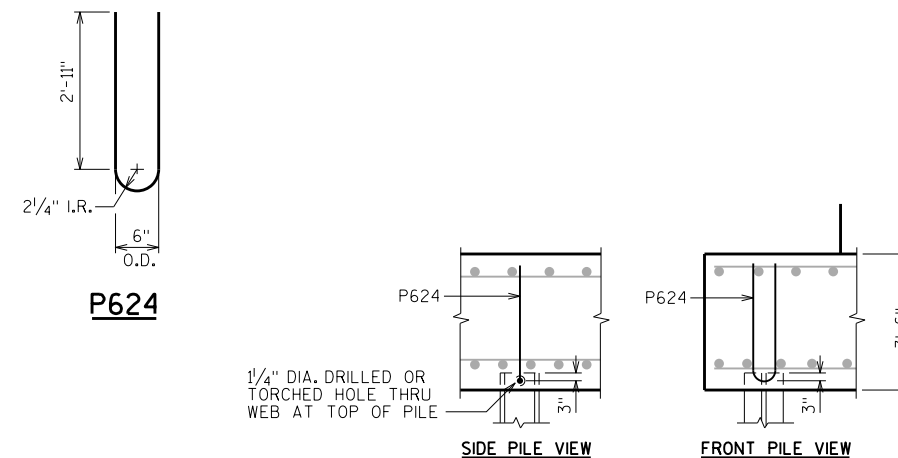
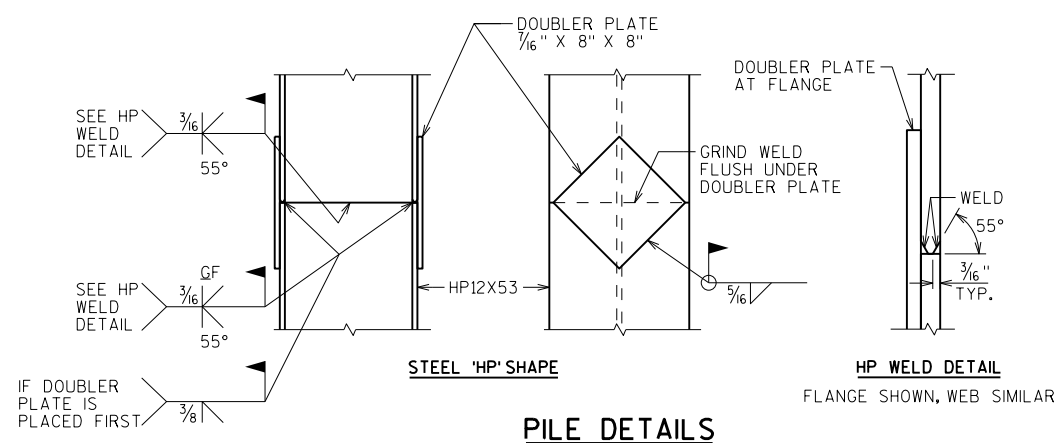
BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
P509	2 SERIES OF 16	12'-3" TO 18'-1"
P510	2 SERIES OF 16	12'-3" TO 19'-3"
P613	2 SERIES OF 8	13'-4" TO 31'-4"

BUNDLE AND TAG EACH SERIES SEPARATELY.



★ PILE UPLIFT DETAIL REQUIRED AT THIS PILE. SEE DETAIL THIS SHEET.



★ PILE UPLIFT DETAIL (SEE "FOOTING & PILE PLAN" FOR UPLIFT BAR LOCATIONS)

(P03) SUPPORT PIER ON HP 12 x 53 STEEL PILING, ESTIMATED 70'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-465			
DRAWN BY: WWR		PLANS CKD: DLM	
PIER 1 DETAILS		SHEET 11	

BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

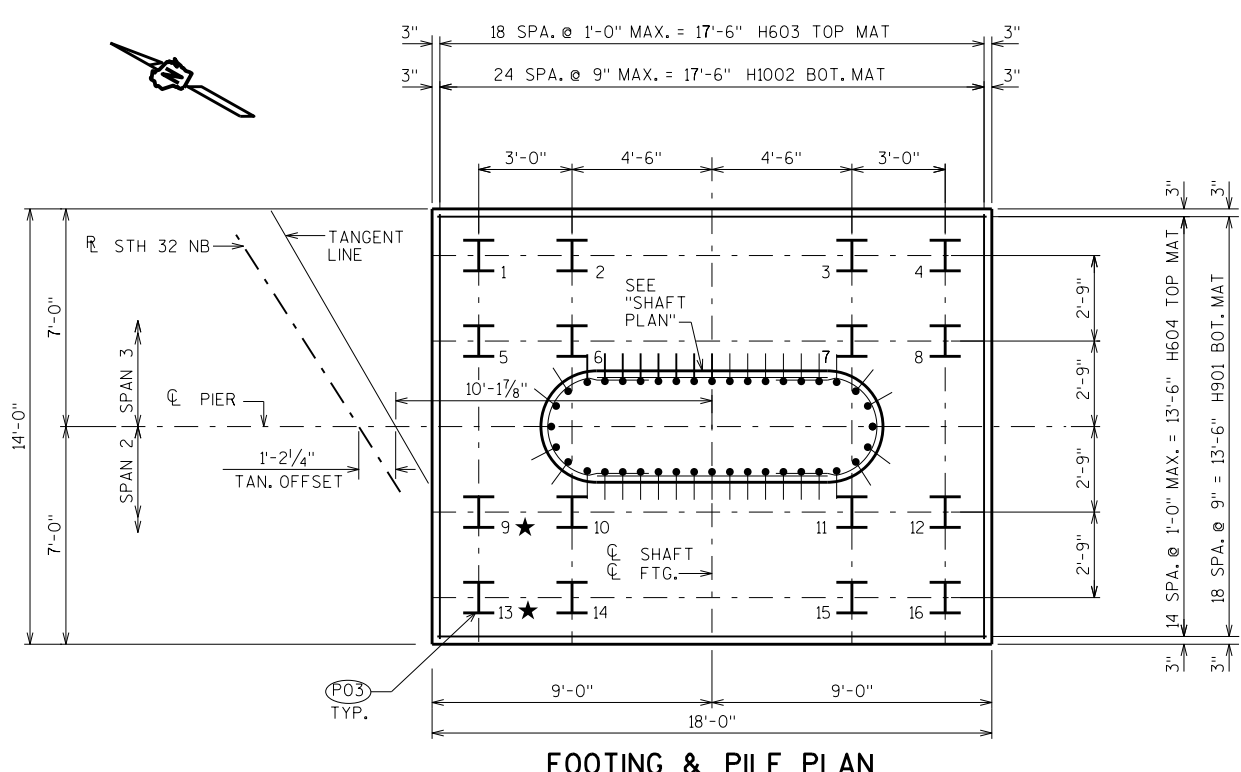
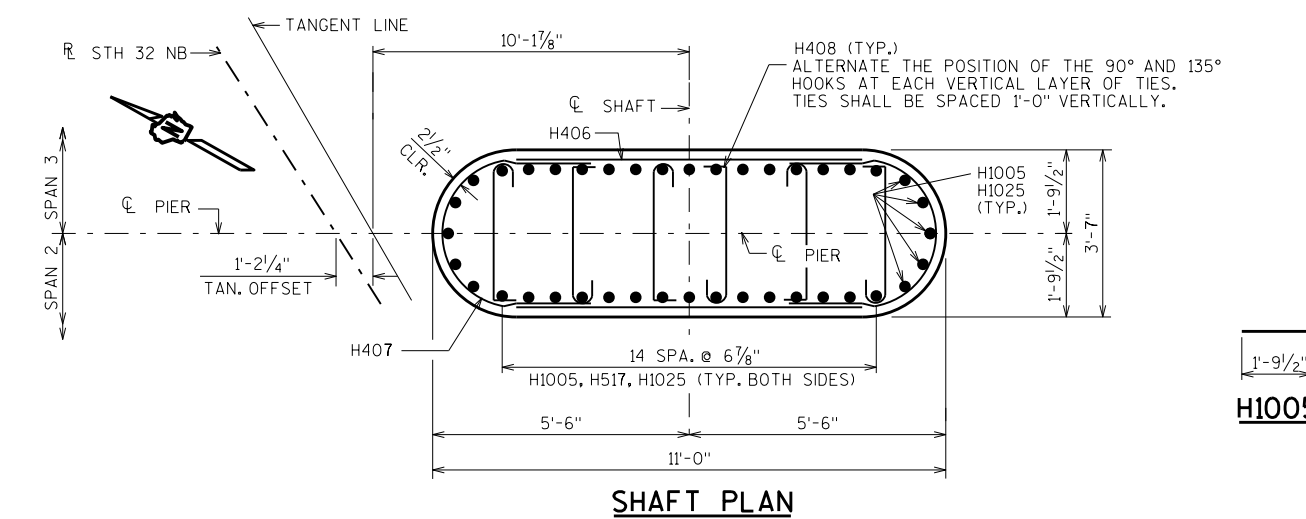
BAR MARK	COYT	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
H901		19	17'-8"			FOOTING-HORIZ. BOT.
H1002		25	13'-8"			FOOTING-HORIZ. BOT.
H603		19	13'-8"			FOOTING-HORIZ. TOP
H604		15	17'-8"			FOOTING-HORIZ. TOP
H1005	X	40	13'-2"	X		FOOTING/SHAFT-VERT.
H406	X	28	7'-5"			FOOTING/SHAFT-HORIZ.
H407	X	28	9'-8"	X		FOOTING/SHAFT-HORIZ.
H408	X	78	4'-1"	X		SHAFT-HORIZ. TIE BARS
H509	X	32	15'-2"	X	▲	CAP-VERT. STIRRUPS
H510	X	32	15'-9"	X	▲	CAP-VERT. STIRRUPS
H611	X	8	18'-1"	X		CAP-HORIZ. BOT.
H612	X	8	18'-8"	X		CAP-HORIZ. BOT.
H613	X	16	22'-4"		▲	CAP-HORIZ. SIDES (LOWER)
H614	X	8	31'-7"			CAP-HORIZ. SIDES (UPPER)
H1015	X	10	34'-9"	X		CAP-HORIZ. TOP
H1016	X	10	35'-5"	X		CAP-HORIZ. TOP
H517	X	15	7'-3"	X		CAP-VERT. U-BAR
H618	X	12	7'-1"	X		CAP-HORIZ. END U-BAR
H519	X	12	2'-0"			CAP-VERT. DOWEL
H420	X	30	6'-0"	X		CAP-VERT. U-BAR AT BEAM SEATS
H421	X	4	4'-6"			CAP-HORIZ.-BEAM SEAT 1
H422	X	12	5'-4"			CAP-HORIZ.-BEAM SEATS 2,3,4
H423	X	4	4'-9"			CAP-HORIZ.-BEAM SEAT 5
H624		2	6'-6"	X		FOOTING-UPLIFT BARS
H1025	X	40	17'-9"			SHAFT/CAP-VERT.

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

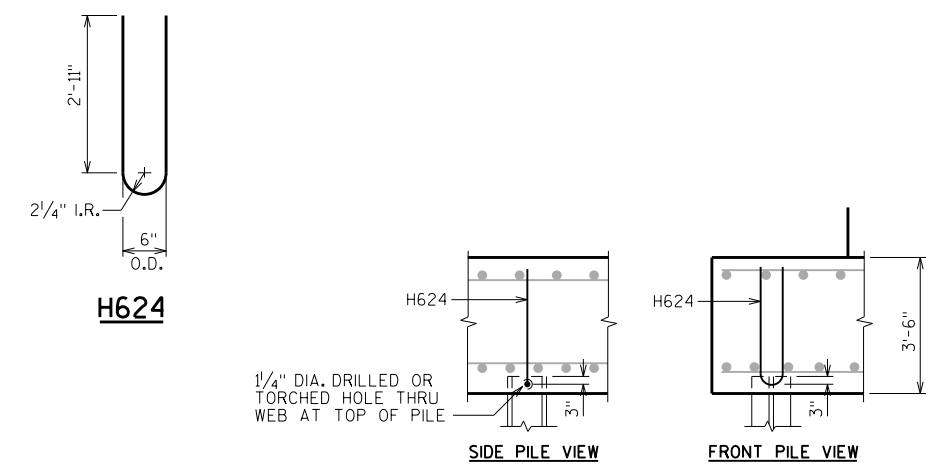
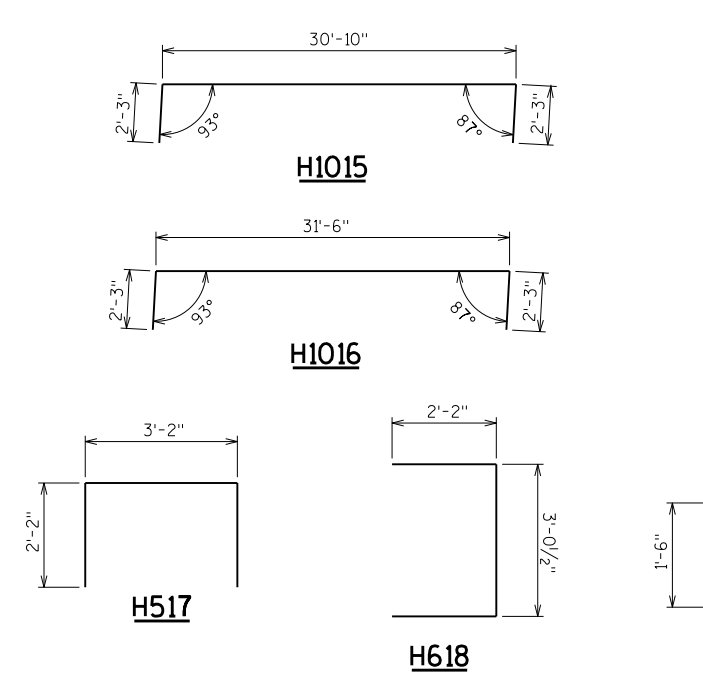
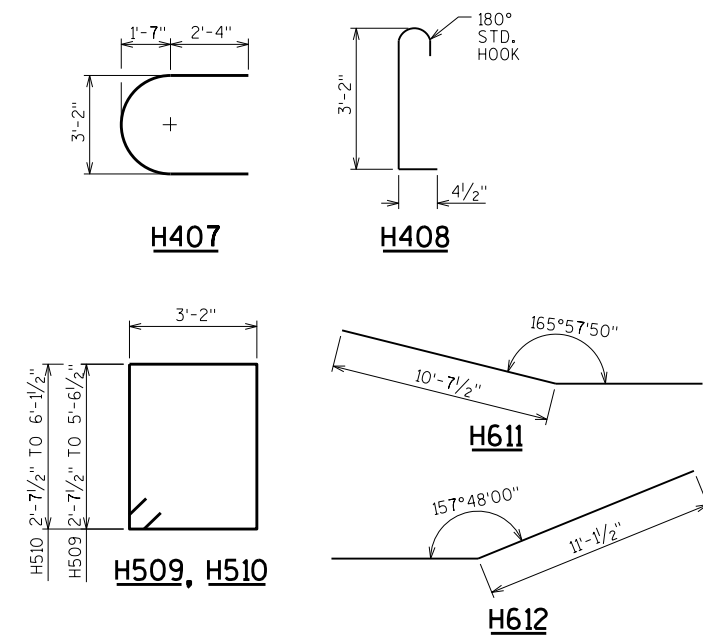
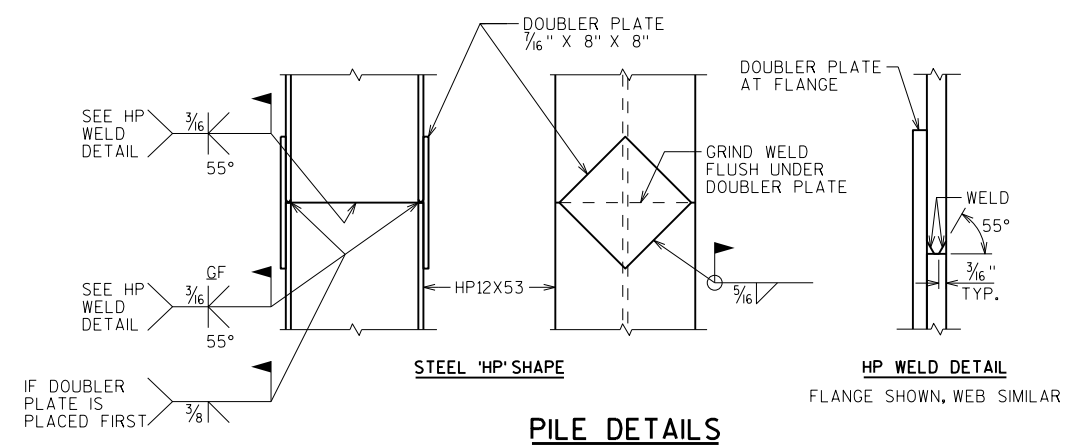
BAR SERIES TABLE

BAR MARK	NO. REQ'D.	LENGTH
H509	2 SERIES OF 16	12'-3" TO 18'-1"
H510	2 SERIES OF 16	12'-3" TO 19'-3"
H613	2 SERIES OF 8	13'-4" TO 31'-4"

BUNDLE AND TAG EACH SERIES SEPARATELY.



★ PILE UPLIFT DETAIL REQUIRED AT THIS PILE. SEE DETAIL THIS SHEET.



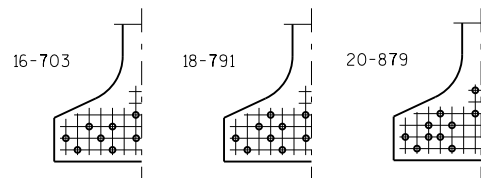
★ PILE UPLIFT DETAIL (SEE "FOOTING & PILE PLAN" FOR UPLIFT BAR LOCATIONS)

(P03) SUPPORT PIER ON HP 12 x 53 STEEL PILING, ESTIMATED 70'-0" LONG WITH A REQUIRED DRIVING RESISTANCE OF 220 TONS PER PILE.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-465			
DRAWN BY		PLANS CK'D.	DLM
WWR		DLM	
PIER 2 DETAILS		SHEET 13	

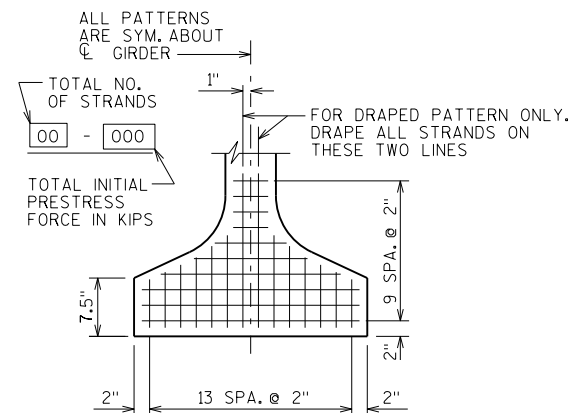
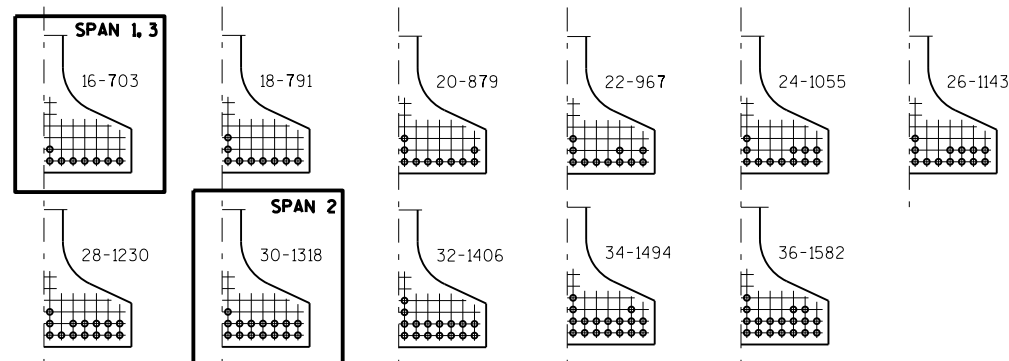
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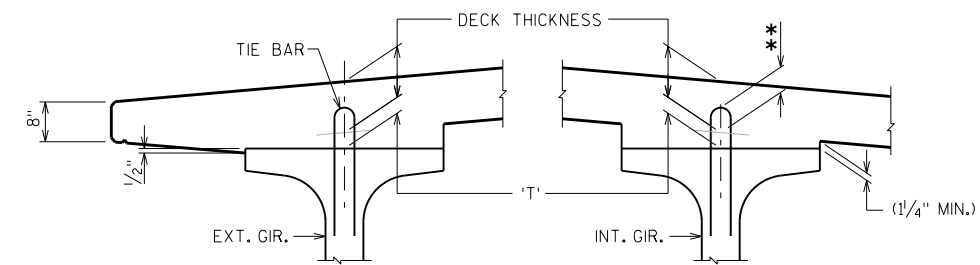


STANDARD ARRANGEMENTS TO RAISE CENTER OF GRAVITY TO AVOID DRAPING OF STRANDS

0.6" DIA. STRANDS



TYP. STRAND PATTERN



DECK HAUNCH DETAIL

IF 1/4" MINIMUM HAUNCH HEIGHT AT EDGE OF GIRDER CANNOT BE MAINTAINED, THE GRADE LINE MAY BE REVISED BY THE ENGINEER AT THE OPTION OF THE CONTRACTOR, THE PLAN DECK THICKNESS SHALL BE HELD. NOTIFY THE STRUCTURES SECTION IF THE GRADE LINE IS RAISED FROM THE PLAN PROFILE BY MORE THAN 1/2" OR, ** IF 3" MINIMUM DECK EMBEDMENT OF TIE BAR CANNOT BE OBTAINED.

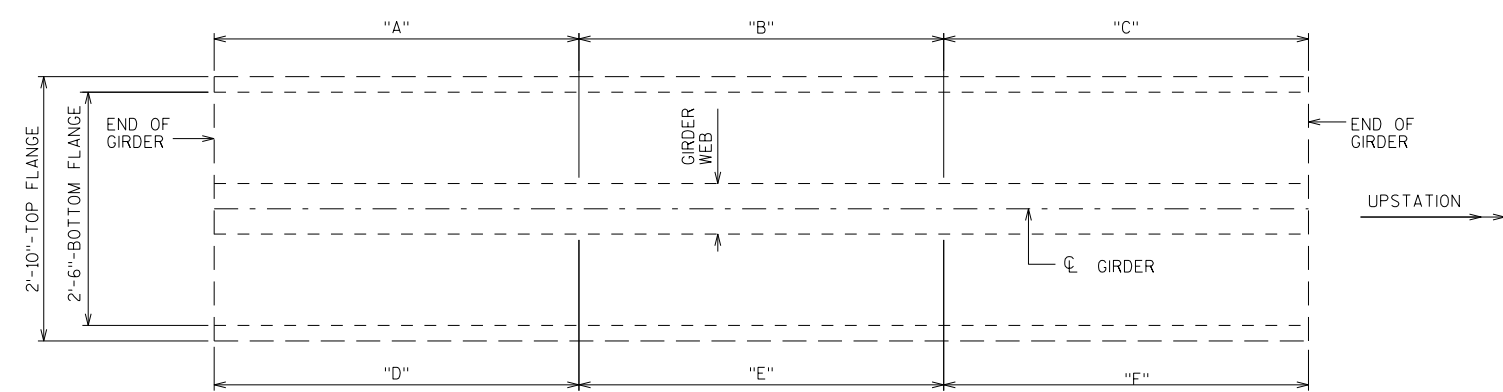
TO DETERMINE 'T', ELEV. OF TOP OF GIR'S. AT CL OF SUBSTRUCTURE UNITS & AT 1/10 POINTS OF EACH SPAN SHALL BE TAKEN. THEN FOLLOW THIS PROCESS:

$$\begin{aligned} & \text{TOP OF DECK ELEV. AT FINAL GRADE} \\ & - \text{TOP OF GIRDER ELEVATION} \\ & + \text{DEAD LOAD DEFLECTION} \\ & - \text{DECK THICKNESS} \\ \hline & = \text{HAUNCH HEIGHT 'T'} \end{aligned}$$

NOTE: AN AVERAGE HAUNCH ('T') OF 3/2" WAS USED IN THE QUANTITY "CONCRETE MASONRY BRIDGES".

ARRANGEMENT AT CL SPAN - FOR GIRDERS WITH DRAPED STRANDS

0.6" DIA. STRANDS

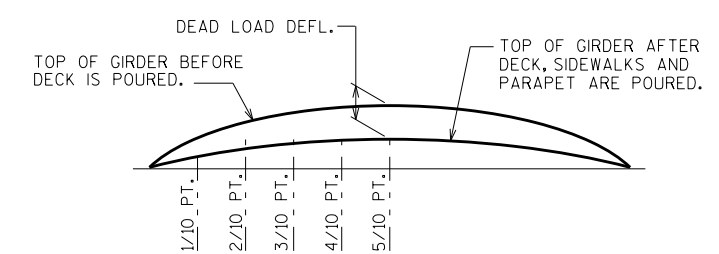


DIAPHRAGM SPACING PLAN

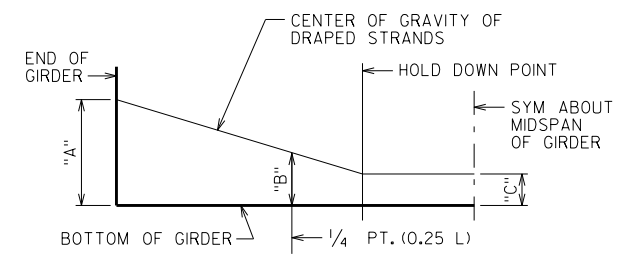
DIMENSIONS MEASURED FROM ENDS OF GIRDER TO DIAPHRAGMS. INSERT HOLES FOR DIAPHRAGM CONNECTIONS TO BE DETERMINED BY GIRDER FABRICATOR BASED ON "DIAPHRAGM SPACING PLAN", "DIAPHRAGM SPACING TABLE", ALONG WITH "STEEL DIAPHRAGM" SHEET 12.

DIAPHRAGM SPACING TABLE

	SPAN 1			SPAN 2			SPAN 3		
	GIRDER 1	GIRDER 2-4	GIRDER 5	GIRDER 1	GIRDER 2-4	GIRDER 5	GIRDER 1	GIRDER 2-4	GIRDER 5
"A"	--	35'-2 3/8"	35'-2 3/8"	--	33'-7 1/4"	33'-7 1/4"	--	38'-4 3/4"	38'-4 3/4"
"B"	--	--	--	--	31'-10 1/2"	31'-10 1/2"	--	--	--
"C"	--	32'-2 5/8"	32'-2 5/8"	--	30'-1 3/4"	30'-1 3/4"	--	34'-7"	34'-7"
"D"	32'-2 5/8"	32'-2 5/8"	--	30'-1 3/4"	30'-1 3/4"	--	34'-7"	34'-7"	--
"E"	--	--	--	31'-10 1/2"	31'-10 1/2"	--	--	--	--
"F"	35'-2 3/8"	35'-2 3/8"	--	33'-7 1/4"	33'-7 1/4"	--	38'-4 3/4"	38'-4 3/4"	--



DEAD LOAD DEFLECTION DIAGRAM



DRAPED STRAND PROFILE

* THE THEORETICAL INITIAL CAMBER VALUE AT THE TIME OF STRAND RELEASE AT MIDSPAN MULTIPLIED BY A FACTOR OF 1.4 TO ACCOUNT FOR CAMBER GROWTH FROM THE TIME OF STRAND RELEASE TO JOBSITE PLACEMENT.

SPAN	CAMBER (IN.) *
1	1.18
2	3.54
3	1.20

THESE VALUES ARE NOT TO BE USED IN DETERMINING 'T'. USE ACTUAL GIRDER SHOTS. THESE VALUES ARE FOR INFORMATIONAL PURPOSES ONLY.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-465			
DRAWN BY		WWR	PLANS CKD. DLM
36W" PRESTRESSED GIRDER DETAILS 2			SHEET 15

NOTES

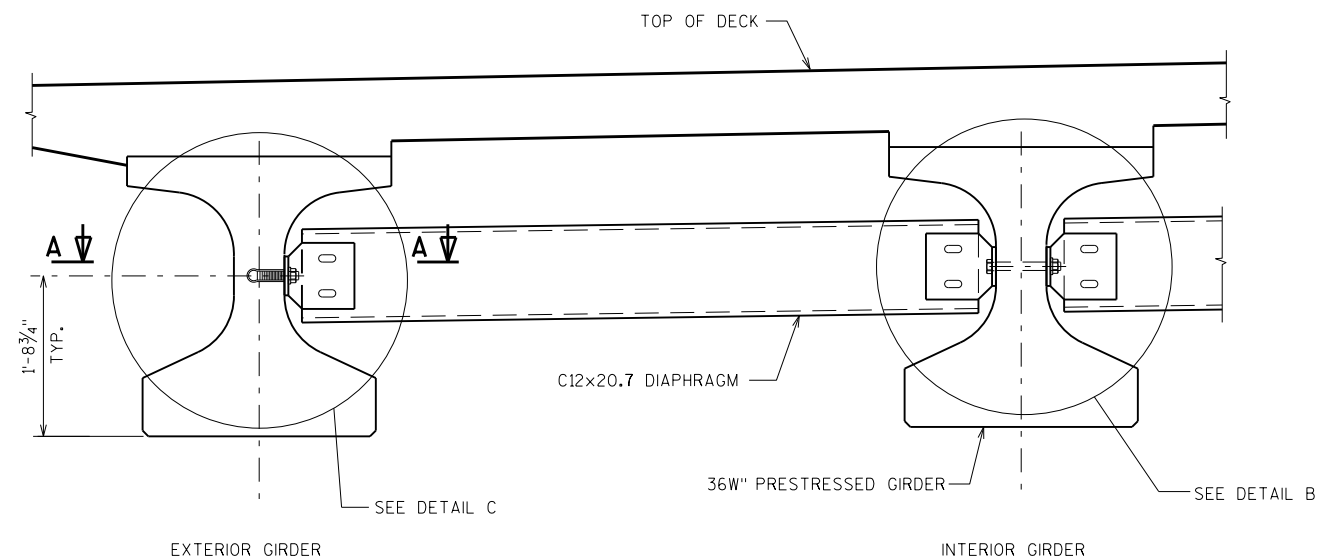
ALL DIAPHRAGM MATERIAL NOT EMBEDDED IN THE CONCRETE GIRDER SHALL BE PAID FOR AT THE UNIT PRICE BID FOR "STEEL DIAPHRAGMS B-5-465", EACH.

EACH DIAPHRAGM BETWEEN GIRDERS SHALL CONSTITUTE ONE UNIT.

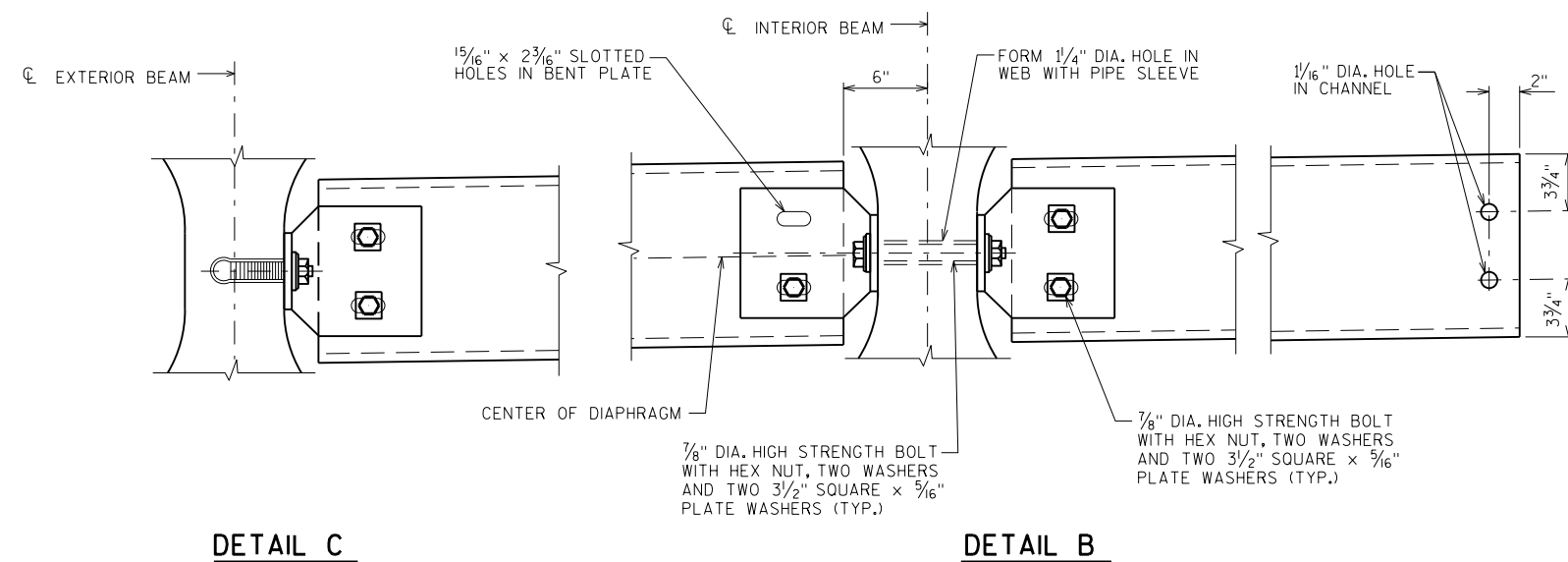
ALL DIAPHRAGM STRUCTURAL STEEL SHALL BE ASTM A709 GRADE 36.

ALL DIAPHRAGM MATERIAL INCLUDING BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION.

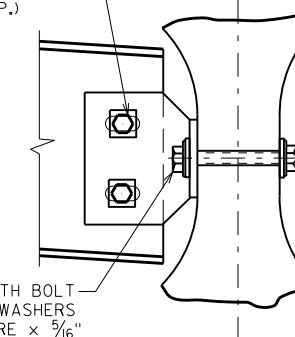
STEEL DIAPHRAGM TO CONCRETE WEB CONNECTION SHALL BE SNUG-TIGHT PLUS 1/4 TURN, UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS FOR WEB CONNECTION SHALL MEET THE REQUIREMENTS FOR ASTM A325 OR ASTM A449.



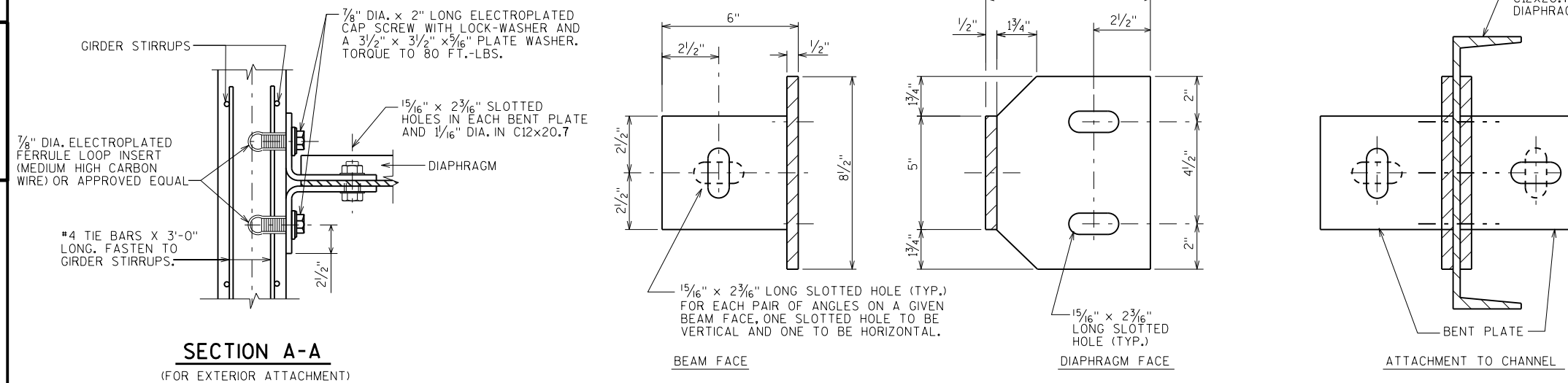
PART TRANSVERSE SECTION AT DIAPHRAGM



7/8" DIA. HIGH STRENGTH BOLT WITH HEX NUT, TWO WASHERS AND TWO 3/2" SQUARE x 5/16" PLATE WASHERS (TYP.)

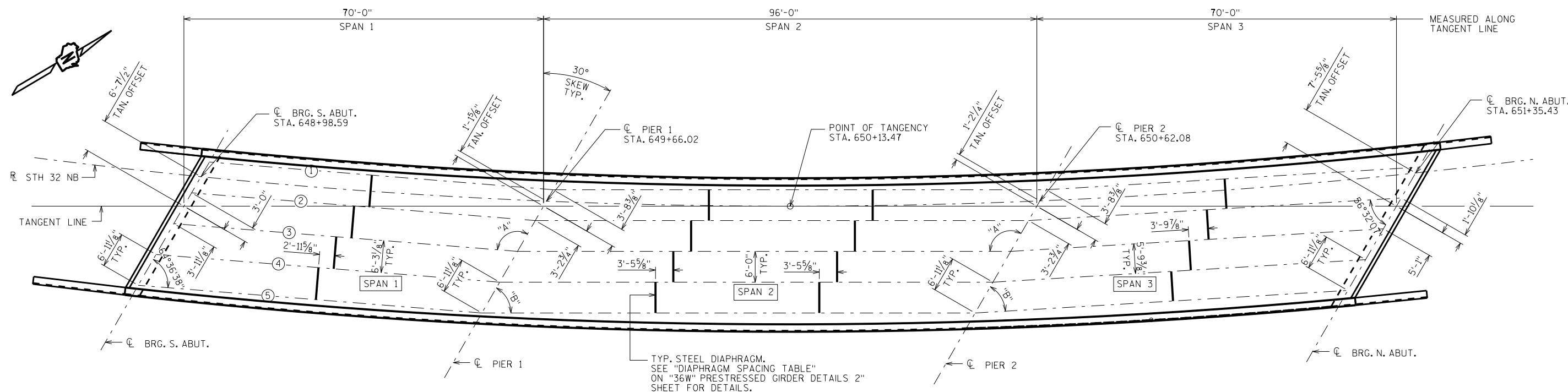


SECTION AT INTERIOR GIRDERS THRU DIAPHRAGM FOR SKEW ANGLES > 10°



NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-465			
DRAWN BY		WWR	PLANS CKD. DLM
STEEL DIAPHRAGM			SHEET 16

○ INDICATES GIRDER NUMBER



FRAMING PLAN

GIRDER ANGLE TABLE (AT PIERS)

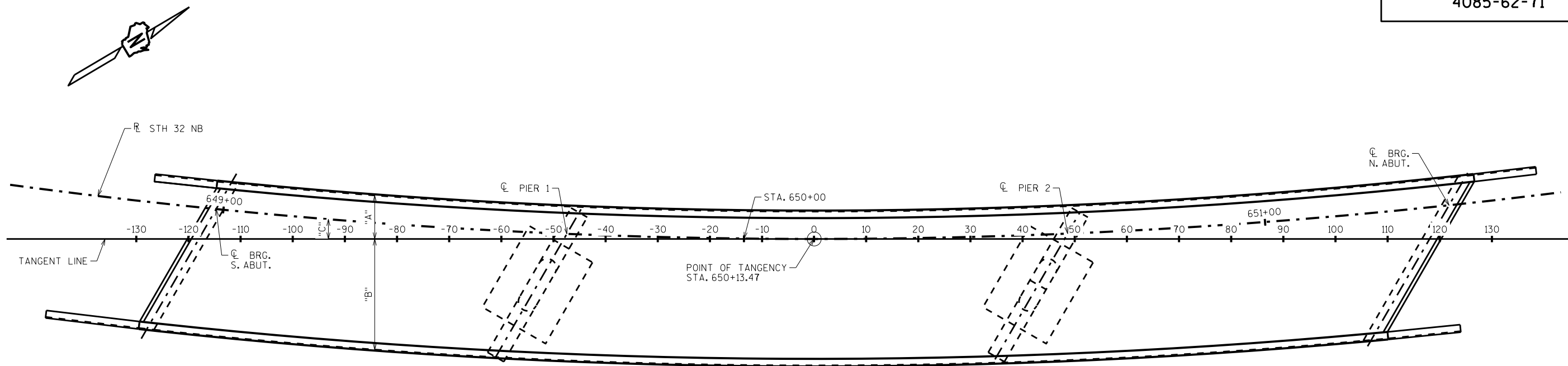
	"A"	"B"
PIER 1	115°23'22"	60°
PIER 2	120°	56°32'07"

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NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-465			
DRAWN BY		PLANS CK'D.	DLM
WWR		SHEET 17	
FRAMING PLAN			

SCALE = 10.00



PLAN

10' INTERVALS SHOWN, OFFSET FROM TANGENT LINE TO END DECK.

TANGENT OFFSET TABLE

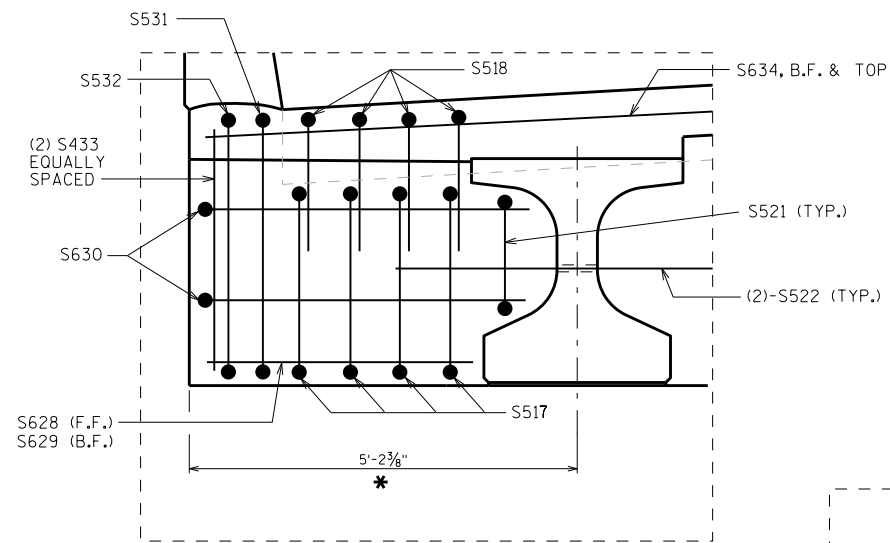
LOCATION (FT.)	"A" (FT.)	"B" (FT.)	"C" (FT.)
-120	N/A	18.09	6.28
-110	10.55	19.08	5.28
-100	9.63	19.98	4.36
-90	8.79	20.79	3.53
-80	8.05	21.52	2.79
-70	7.39	22.16	2.13
-60	6.82	22.71	1.57
-50	6.34	23.18	1.09
-40	5.95	23.57	0.70
-30	5.64	23.87	0.39
-20	5.42	24.08	0.17
-10	5.29	24.21	0.04
0	5.25	24.25	0

LOCATION (FT.)	"A" (FT.)	"B" (FT.)	"C" (FT.)
10	5.29	24.21	0.04
20	5.42	24.08	0.17
30	5.64	23.87	0.39
40	5.95	23.57	0.69
50	6.34	23.19	1.09
60	6.82	22.72	1.56
70	7.39	22.16	2.13
80	8.05	21.52	2.78
90	8.79	20.80	3.53
100	9.62	19.98	4.35
110	10.55	19.09	5.27
120	11.56	N/A	6.28

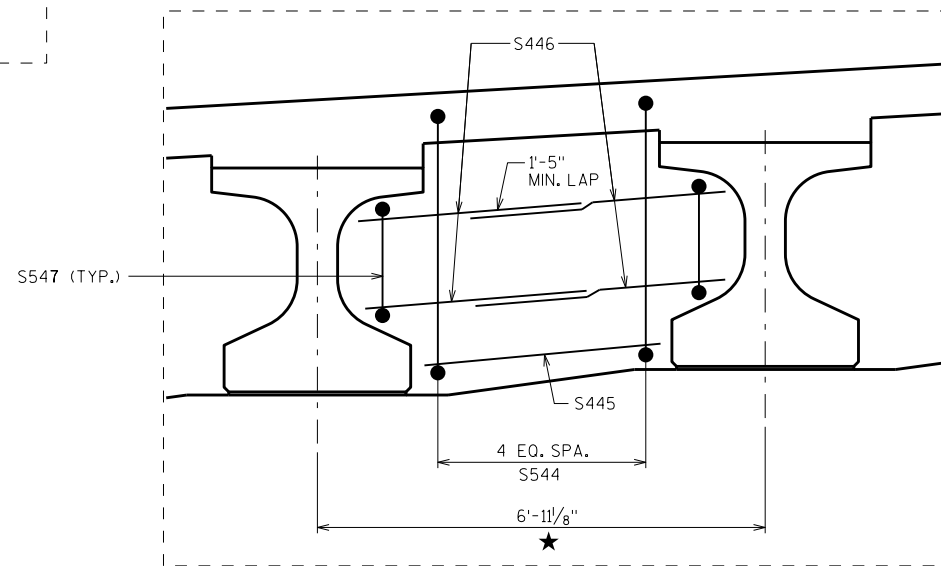
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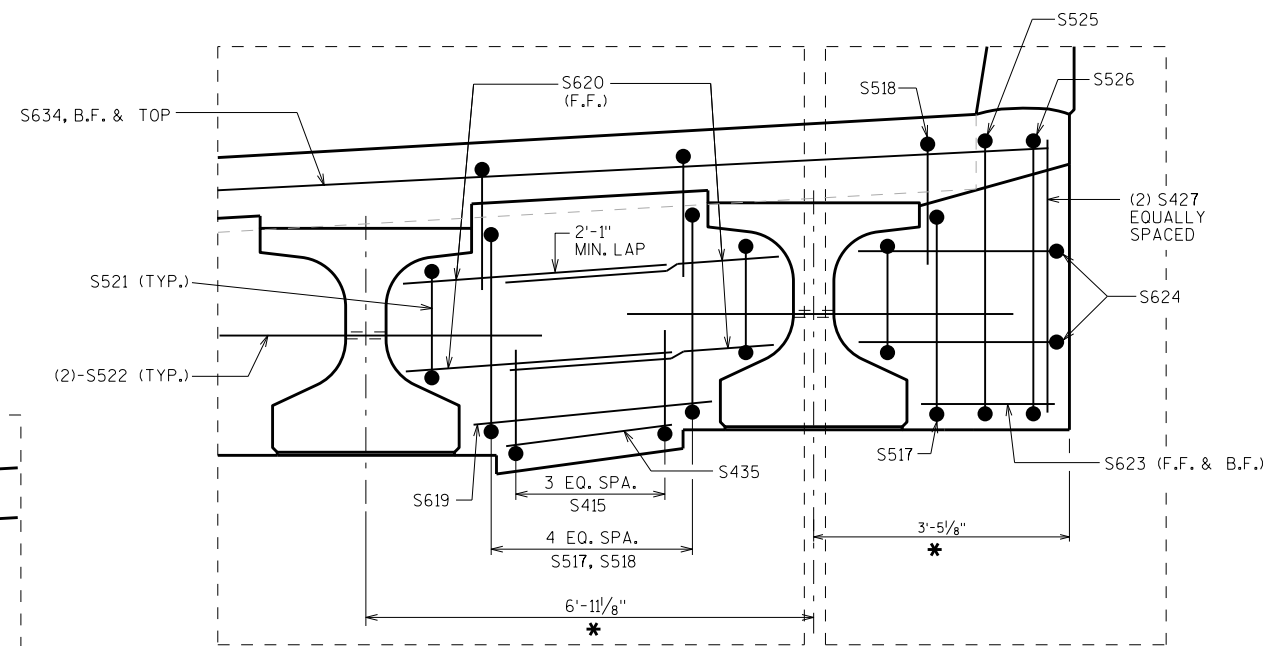
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-465			
DRAWN BY		WWR	PLANS CK'D. DLM
TANGENT-OFFSET DECK LAYOUT			SHEET 18



**WEST END
NORTH ABUT. DIAPH.**
LOOKING AT F.F.

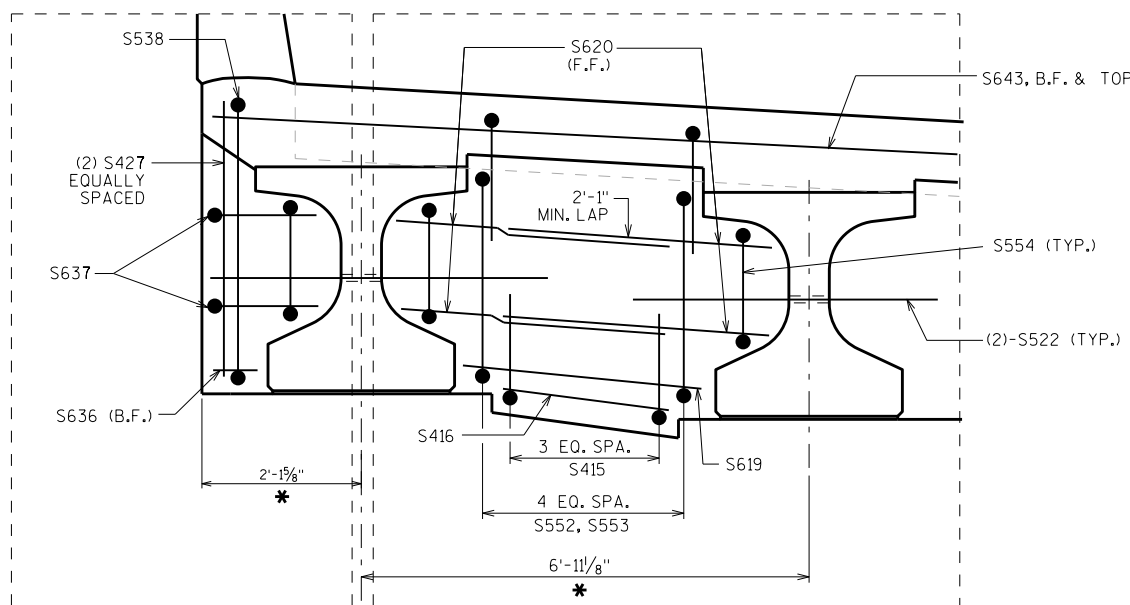


TYPICAL PIER DIAPH.
FOR PIERS 1 & 2
LOOKING UPSTATION



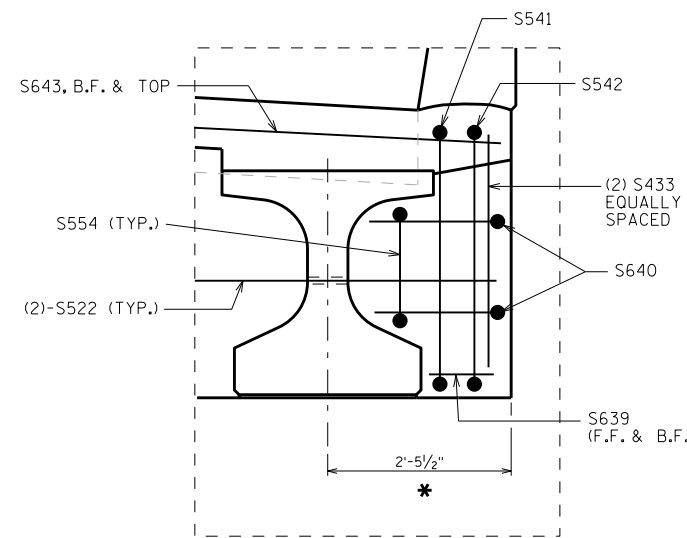
**TYPICAL IN-SPAN
NORTH ABUT. DIAPH.**
LOOKING AT F.F.

**EAST END
NORTH ABUT. DIAPH.**
LOOKING AT F.F.



**EAST END
SOUTH ABUT. DIAPH.**
LOOKING AT F.F.

**TYPICAL IN-SPAN
SOUTH ABUT. DIAPH.**
LOOKING AT F.F.



**WEST END
SOUTH ABUT. DIAPH.**
LOOKING AT F.F.

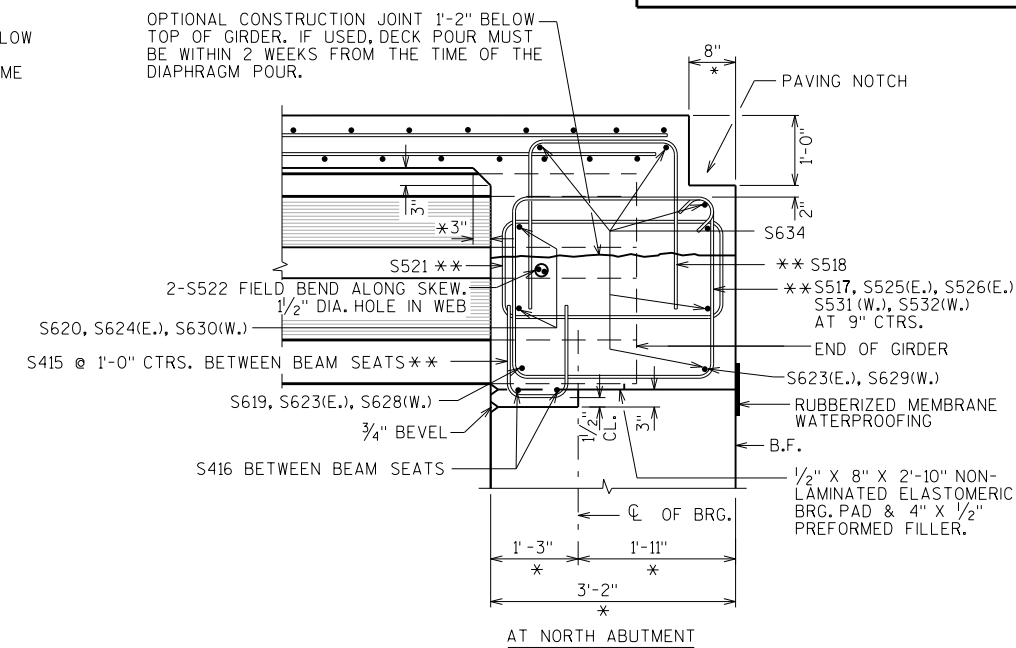
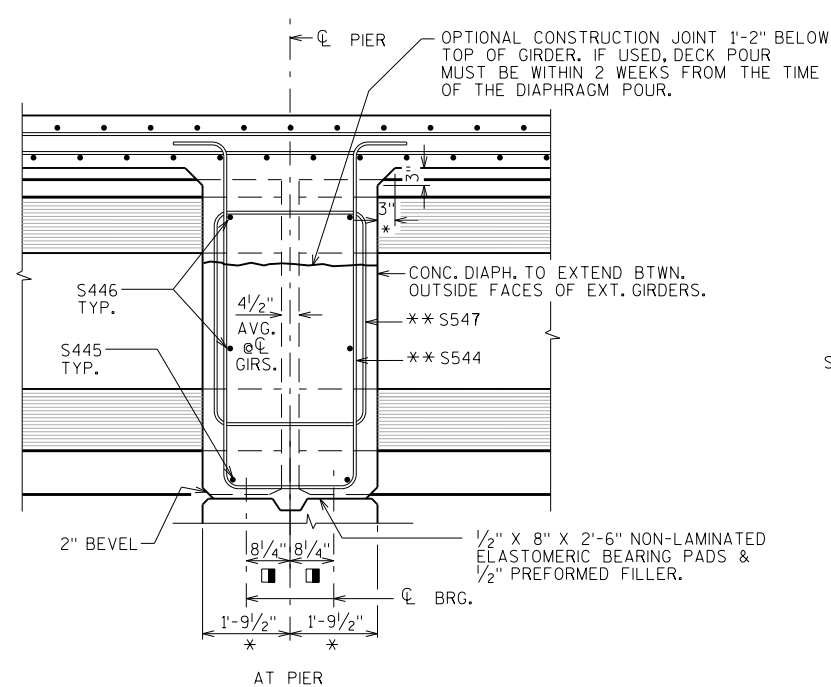
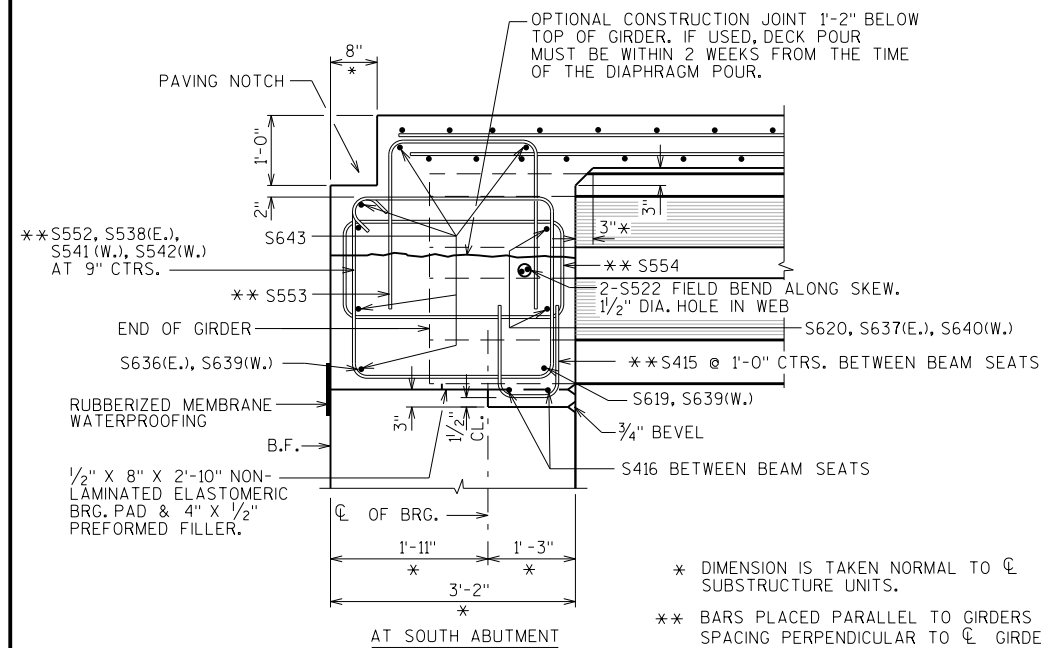
* MEASURED ALONG ϕ BEARING OF ABUT.
★ MEASURED ALONG ϕ OF PIER

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-465			
DRAWN BY		PLANS CKD.	DLM
SUPERSTRUCTURE CONCRETE DIAPHRAGMS		SHEET 20	

8

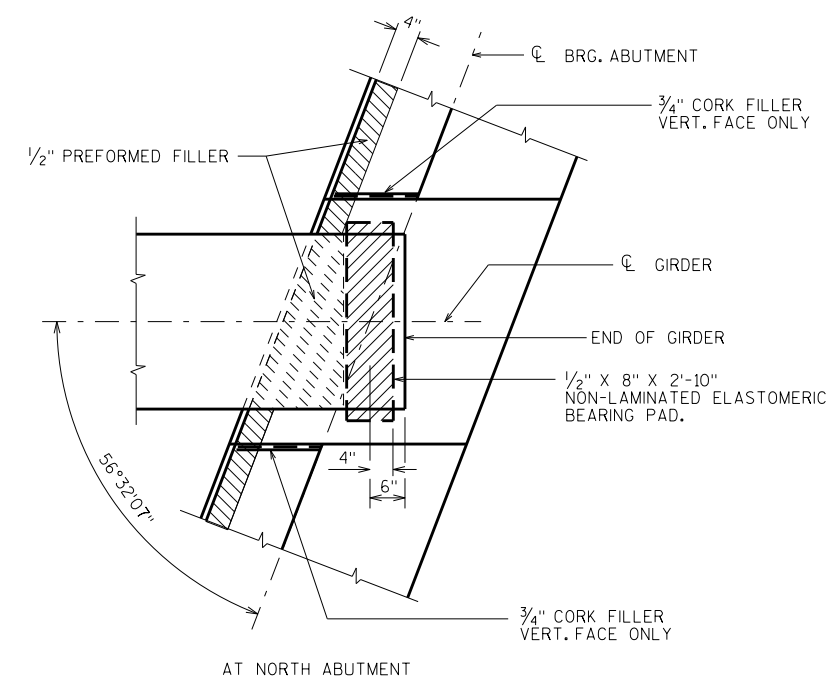
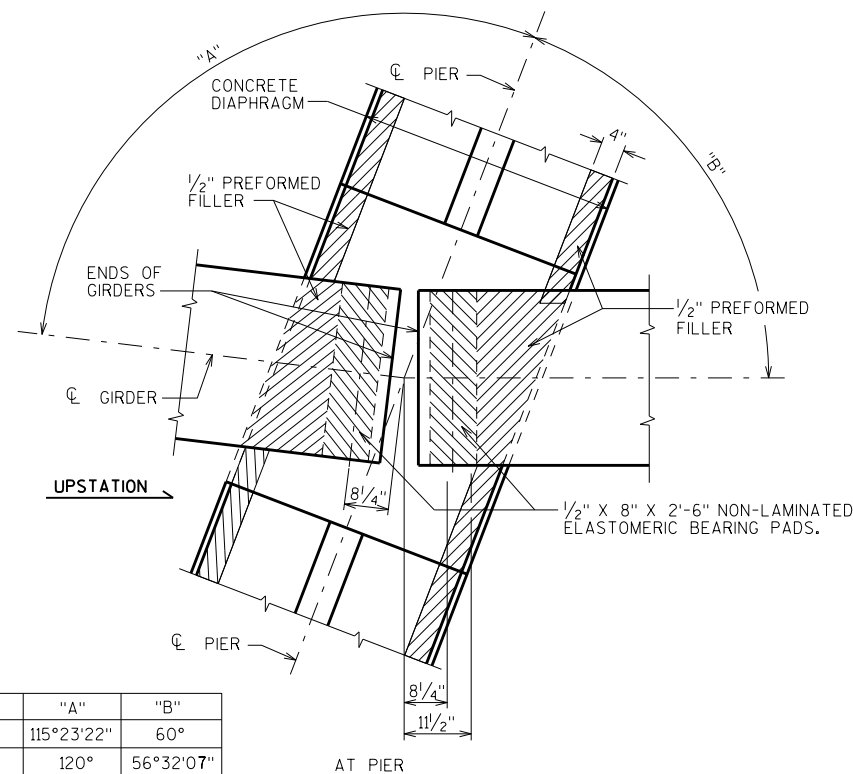
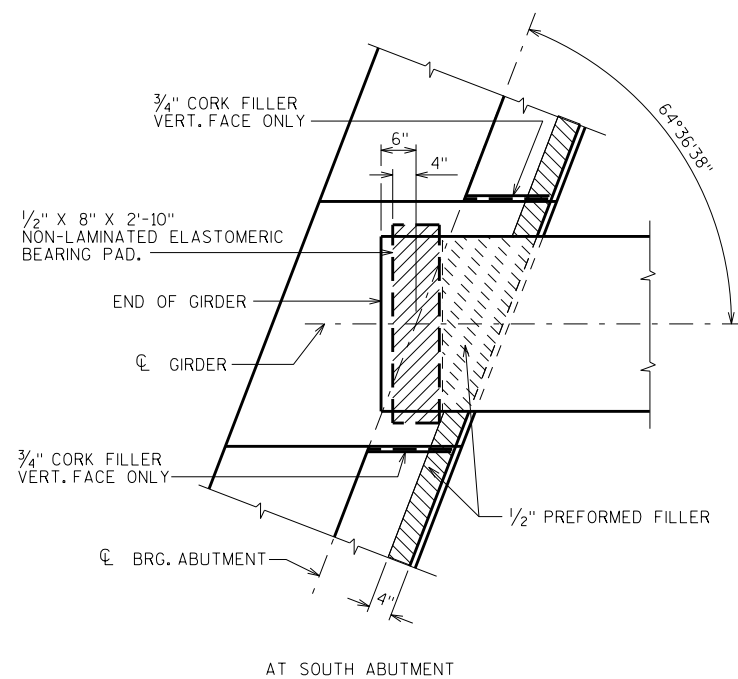
8

SCALE = 1:25



* DIMENSION IS TAKEN NORMAL TO ϕ SUBSTRUCTURE UNITS.
 ** BARS PLACED PARALLEL TO GIRDERS SPACING PERPENDICULAR TO ϕ GIRDERS.
 NOTE:
 AT PIERS, BARS PLACED PARALLEL AND SPACED PERPENDICULAR TO SPAN 2 GIRDERS.
 DIMENSION IS TAKEN PARALLEL TO ϕ OF GIRDER

PART LONGIT. SECTION



	"A"	"B"
PIER 1	115°23'22"	60°
PIER 2	120°	56°32'07"

BEARING PAD DETAIL

PIER 1 SHOWN, PIER 2 SIMILAR

NOTE:
 SEE GIRDER ANGLES ON "SUPERSTRUCTURE" SHEET FOR ADDITIONAL DETAILS

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-465			
DRAWN BY: WWR		PLANS CKD: DLM	
SUPERSTRUCTURE DETAILS 1			SHEET 21

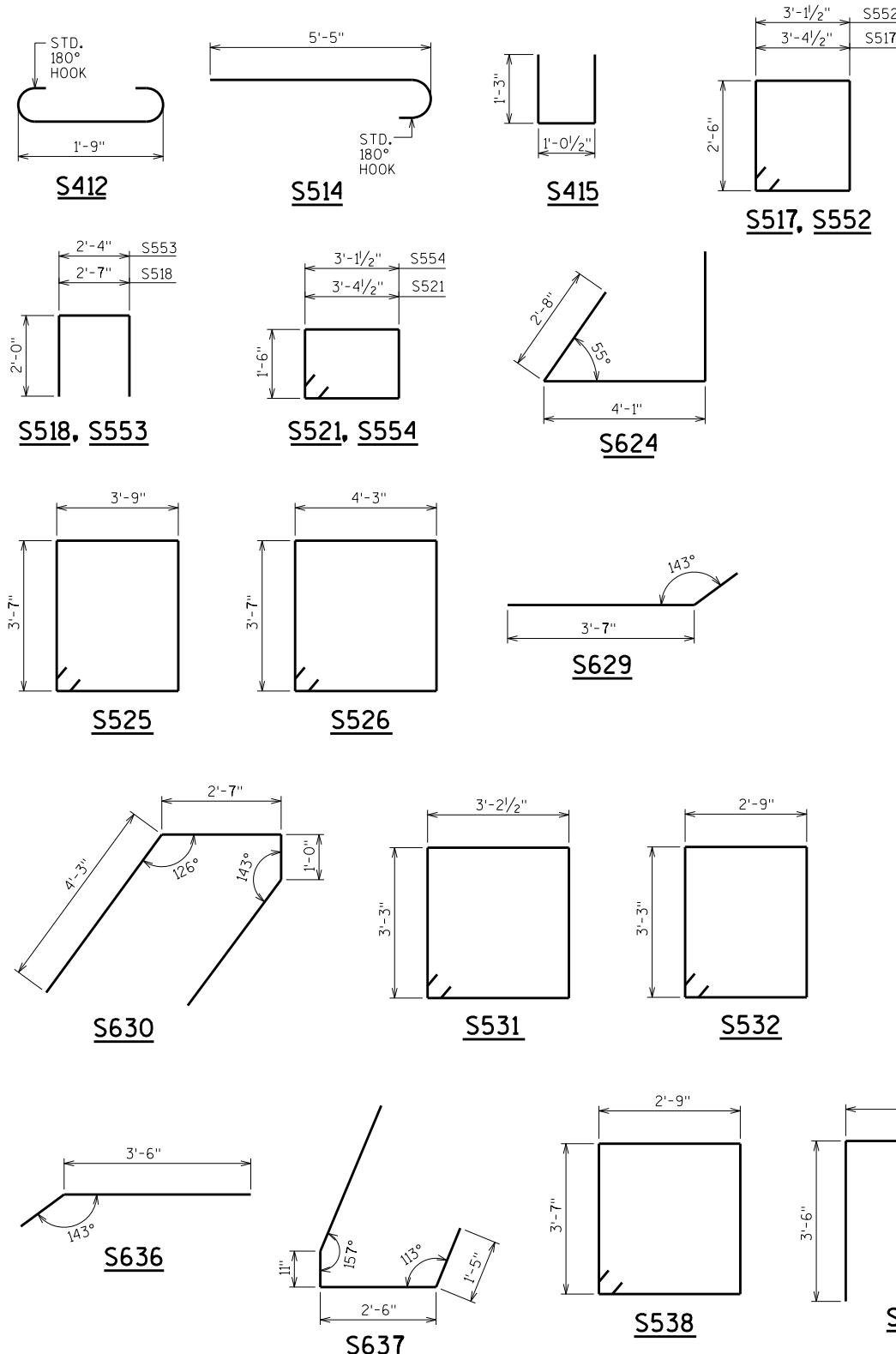
BILL OF BARS

NOTE: THE FIRST OR FIRST TWO DIGITS OF THE BAR MARK SIGNIFIES THE BAR SIZE

STATE PROJECT NUMBER

4085-62-71

BAR MARK	QTY	NO. REQ'D.	LENGTH	BENT	BAR SERIES	LOCATION
S801	X	80	50'-6"			DECK-TOP LONGIT.-CONTINUITY
S802	X	78	29'-6"			DECK-TOP LONGIT.-CONTINUITY
S403	X	40	45'-0"			DECK-TOP LONGIT.-SPAN 1
S404	X	80	25'-4"			DECK-TOP LONGIT.-SPAN 2
S405	X	80	27'-4"			DECK-TOP LONGIT.-SPAN 3
S406	X	240	41'-5"			DECK-BOT. LONGIT.
S407	X	835	29'-2"			DECK-TOP & BOT.-TRANS.
S408	X	23	14'-5"		▲	DECK-BOT. TRANS.
S409	X	35	14'-9"		▲	DECK-BOT. TRANS.
S410	X	22	14'-3"		▲	DECK-TOP TRANS.
S411	X	35	14'-4"		▲	DECK-TOP TRANS.
S412	X	172	2'-9"	X		DECK-BOT. TRANS. (EAST EDGE) SPAN 2 & 3
S413	X	6	44'-0"			DECK-BOT. LONGIT. (EAST EDGE) SPAN 2 & 3
S514	X	893	6'-0"	X		DECK-TOP TRANS. (EDGES) OVERHANG
S415	X	32	3'-5"	X		ABUT. DIAPH.-VERT. BOT. U-BAR
S416	X	8	2'-8"			ABUT. DIAPH.-HORIZ. BOT.-(S. ABUT.)
S517	X	24	12'-5"	X		ABUT. DIAPH.-VERT. STIRRUP (N. ABUT.)
S518	X	24	6'-4"	X		ABUT. DIAPH.-VERT. TOP U-BAR (N. ABUT.)
S619	X	8	3'-7"			ABUT. DIAPH.-HORIZ. BOT.
S620	X	32	4'-0"			ABUT. DIAPH.-HORIZ.
S521	X	10	10'-5"	X		ABUT. DIAPH.-VERT. STIRRUP @ FLANGES (N. ABUT.)
S522	X	20	6'-0"			ABUT. DIAPH.-HORIZ. THRU GIR.
S623	X	2	1'-6"			ABUT. DIAPH.-HORIZ. BOT.-NE END
S624	X	2	9'-10"	X		ABUT. DIAPH.HORIZ.-NE END
S525	X	1	15'-4"	X		ABUT. DIAPH.-VERT. STIRRUP-NE END
S526	X	1	16'-4"	X		ABUT. DIAPH.-VERT. STIRRUP-NE END
S427	X	4	3'-10"			ABUT. DIAPH.-VERT.-NE & SE END
S628	X	1	3'-2"			ABUT. DIAPH.-HORIZ. BOT.-NW END
S629	X	1	4'-6"	X		ABUT. DIAPH.-HORIZ. BOT.-NW END
S630	X	2	11'-0"	X		ABUT. DIAPH.HORIZ.-NW END
S531	X	1	13'-7"	X		ABUT. DIAPH.-VERT. STIRRUP-NW END
S532	X	1	12'-8"	X		ABUT. DIAPH.-VERT. STIRRUP-NW END
S433	X	4	3'-5"			ABUT. DIAPH.-VERT.-NW & SW END
S634	X	5	34'-7"			ABUT. DIAPH.-HORIZ. B.F. & TOP-(N. ABUT.)
S435	X	8	2'-4"			ABUT. DIAPH.-HORIZ. BOT.-(NORTH)
S636	X	1	4'-3"	X		ABUT. DIAPH.-HORIZ. BOT.-SE END
S637	X	2	8'-0"	X		ABUT. DIAPH.HORIZ.-SE END
S538	X	1	13'-4"	X		ABUT. DIAPH.-VERT. STIRRUP-SE END
S639	X	2	0'-8"			ABUT. DIAPH.-HORIZ. BOT.-SW END
S640	X	2	8'-3"	X		ABUT. DIAPH.HORIZ.-SW END
S541	X	1	14'-1"	X		ABUT. DIAPH.-VERT. STIRRUP-SW END
S542	X	1	14'-6"	X		ABUT. DIAPH.-VERT. STIRRUP-SW END
S643	X	5	30'-8"			ABUT. DIAPH.-HORIZ. B.F. & TOP-(S.ABUT.)
S544	X	40	11'-11"	X		PIER DIAPH.-VERT. BTWN. GIRS.
S445	X	16	3'-7"			PIER DIAPH.-HORIZ. BOT.
S446	X	64	3'-8"			PIER DIAPH.-HORIZ.
S547	X	16	10'-10"	X		PIER DIAPH.-VERT. @ GIRDER FLANGES
S548	X	6	5'-10"	X		DECK/PARAPET-VERT. CORNERS
S549	X	718	4'-5"	X		DECK/PARAPET-VERT.
S550	X	724	6'-8"	X		PARAPET-VERT.
S551	X	96	41'-10"			PARAPET-HORIZ.
S552	X	20	11'-10"	X		ABUT. DIAPH.-VERT. STIRRUP-S. ABUT.
S553	X	20	6'-1"	X		ABUT. DIAPH.-VERT. TOP U-BAR S. ABUT.
S554	X	10	9'-11"	X		ABUT. DIAPH.-VERT. STIRR. @ FLANGES S. ABUT.



TOP OF DECK ELEVATIONS

GIRDER 1/8 POINTS ARE GIVEN ALONG EACH GIRDER.

	CL. BRG. S. ABUT.	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	CL. PIER 1
W EOD	650.16	650.03	649.90	649.77	649.63	649.49	649.36	649.22	649.08	648.94	648.80
W GUTTER	650.18	650.04	649.91	649.78	649.64	649.51	649.37	649.23	649.09	648.95	648.81
G1	650.24	650.10	649.97	649.83	649.70	649.57	649.44	649.31	649.18	649.06	648.93
PGL	650.44	650.31	650.18	650.05	649.91	649.78	649.64	649.51	649.37	649.23	649.09
G2	650.66	650.52	650.38	650.25	650.12	649.99	649.86	649.73	649.60	649.47	649.35
G3	651.07	650.93	650.80	650.67	650.53	650.40	650.27	650.14	650.02	649.89	649.76
G4	651.49	651.35	651.21	651.08	650.95	650.82	650.69	650.56	650.43	650.30	650.18
G5	651.90	651.76	651.63	651.49	651.36	651.23	651.10	650.97	650.85	650.72	650.60
E GUTTER	651.95	651.82	651.69	651.56	651.43	651.30	651.17	651.04	650.91	650.77	650.64
E EOD	651.96	651.83	651.70	651.57	651.45	651.32	651.18	651.05	650.92	650.79	650.65

	CL. PIER 1	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	CL. PIER 2
W EOD	648.80	648.60	648.39	648.18	647.97	647.76	647.55	647.33	647.11	646.89	646.67
W GUTTER	648.81	648.61	648.41	648.20	647.99	647.78	647.56	647.35	647.13	646.91	646.69
G1	648.93	648.71	648.49	648.27	648.06	647.85	647.64	647.43	647.22	647.02	646.82
PGL	649.10	648.90	648.69	648.49	648.28	648.07	647.86	647.64	647.43	647.21	646.99
G2	649.35	649.13	648.91	648.69	648.48	648.26	648.05	647.85	647.64	647.44	647.24
G3	649.76	649.54	649.32	649.11	648.89	648.68	648.47	648.27	648.06	647.86	647.66
G4	650.18	649.96	649.74	649.52	649.31	649.10	648.89	648.68	648.48	648.28	648.08
G5	650.60	650.37	650.16	649.94	649.73	649.52	649.31	649.10	648.90	648.69	648.50
E GUTTER	650.64	650.45	650.25	650.05	649.85	649.65	649.45	649.24	649.03	648.82	648.61
E EOD	650.65	650.46	650.26	650.07	649.87	649.67	649.46	649.26	649.05	648.84	648.63

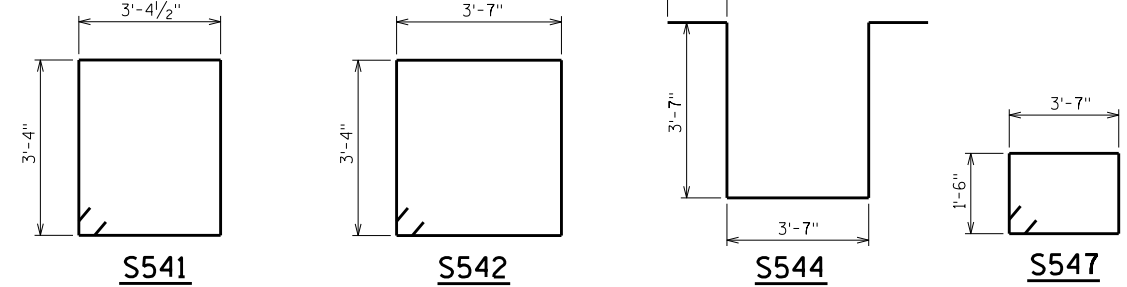
	CL. PIER 2	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	CL. BRG. N. ABUT.
W EOD	646.67	646.50	646.32	646.15	645.97	645.80	645.62	645.44	645.26	645.08	644.89
W GUTTER	646.69	646.52	646.34	646.17	645.99	645.82	645.64	645.46	645.28	645.10	644.91
G1	646.82	646.65	646.47	646.30	646.12	645.95	645.78	645.61	645.45	645.28	645.12
PGL	646.98	646.81	646.63	646.46	646.29	646.11	645.94	645.76	645.58	645.40	645.22
G2	647.24	647.06	646.89	646.72	646.54	646.37	646.20	646.03	645.87	645.70	645.54
G3	647.66	647.48	647.31	647.13	646.96	646.79	646.62	646.45	646.29	646.12	645.96
G4	648.08	647.90	647.73	647.55	647.38	647.21	647.04	646.87	646.71	646.54	646.38
G5	648.50	648.32	648.14	647.97	647.80	647.63	647.46	647.29	647.13	646.96	646.80
E GUTTER	648.61	648.45	648.29	648.12	647.95	647.79	647.62	647.45	647.28	647.10	646.93
E EOD	648.63	648.47	648.30	648.14	647.97	647.80	647.64	647.47	647.30	647.12	646.95

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

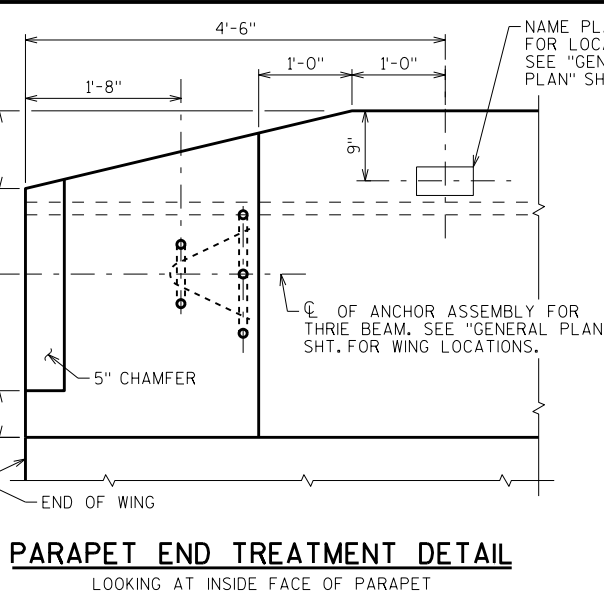
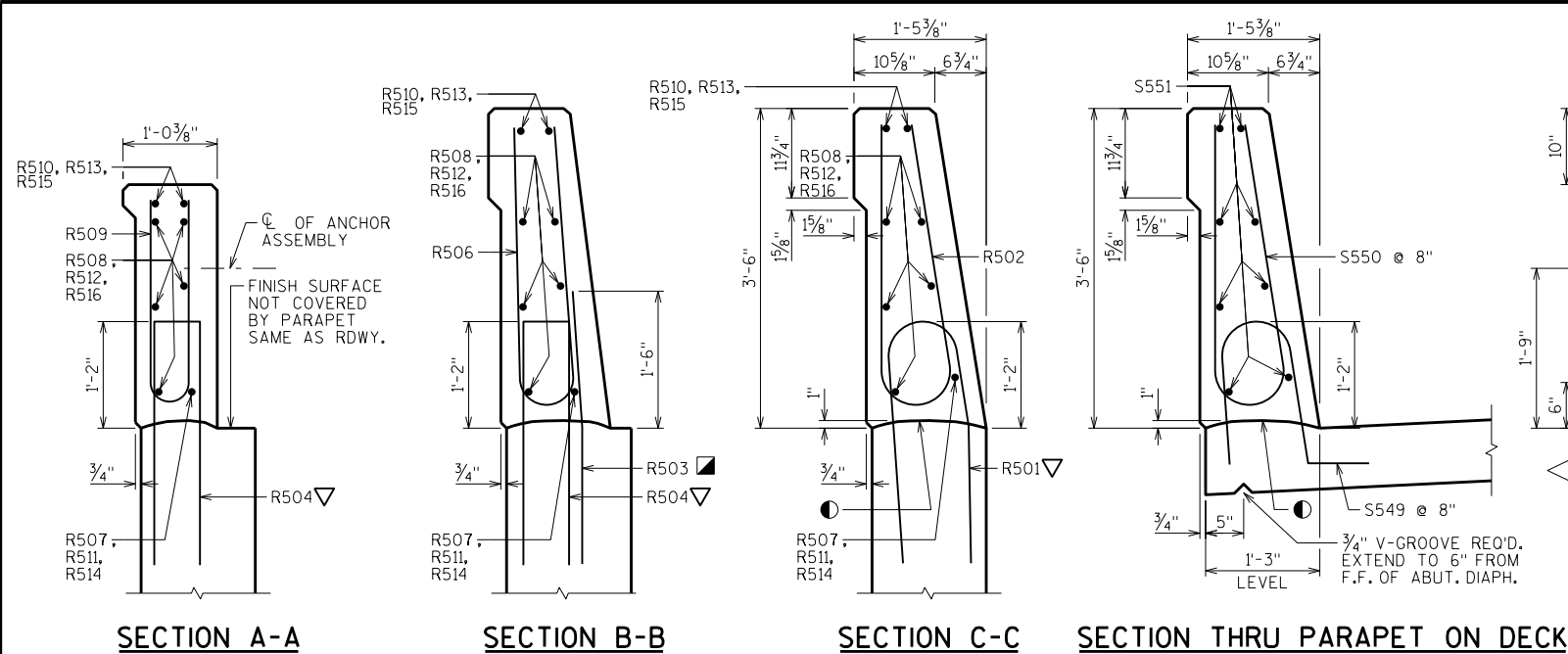
BAR MARK	NO. REQ'D.	LENGTH
S408	1 SERIES OF 23	1'-2" TO 27'-7"
S409	1 SERIES OF 35	1'-9" TO 27'-8"
S410	1 SERIES OF 22	1'-9" TO 27'-0"
S411	1 SERIES OF 35	1'-4" TO 27'-5"

BUNDLE AND TAG EACH SERIES SEPARATELY.



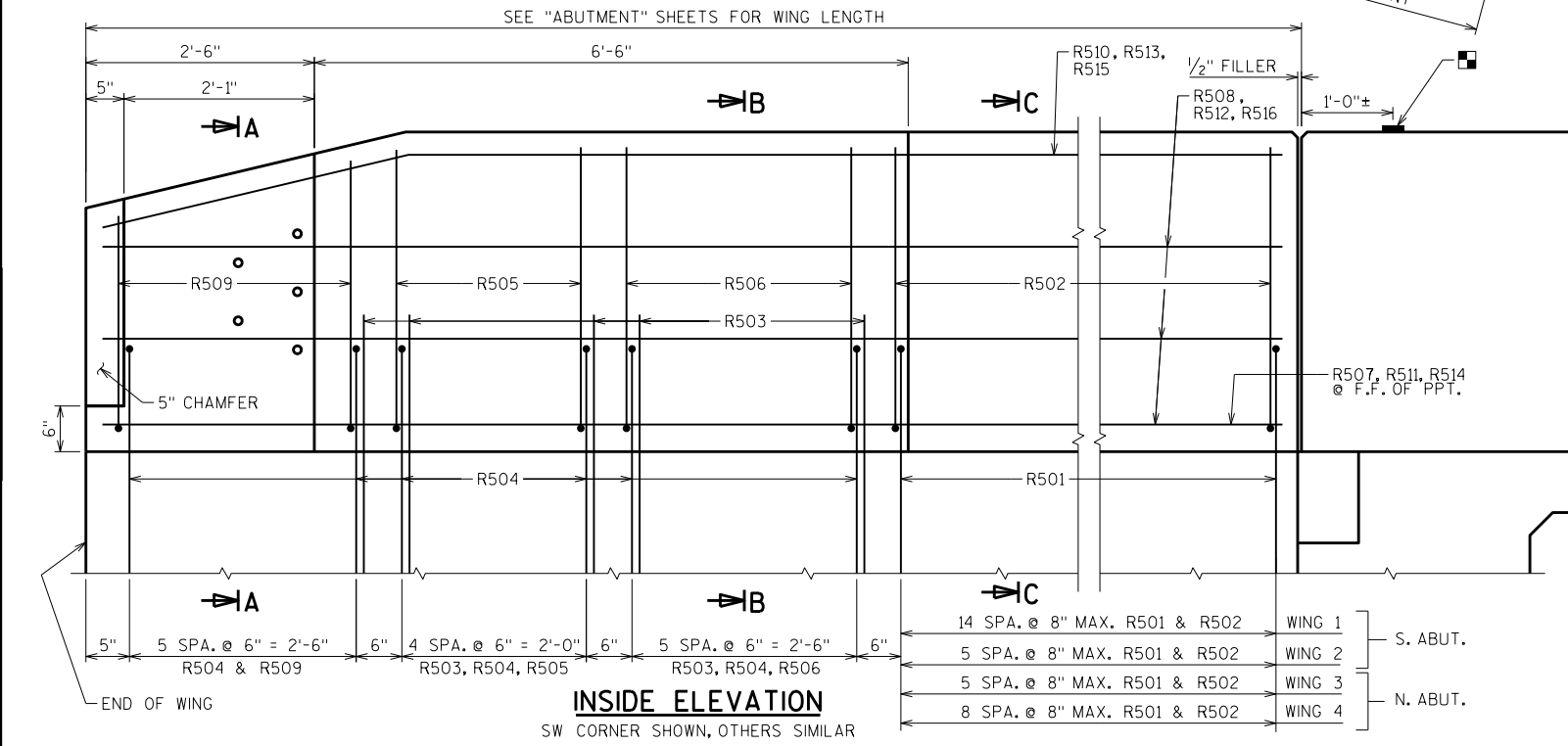
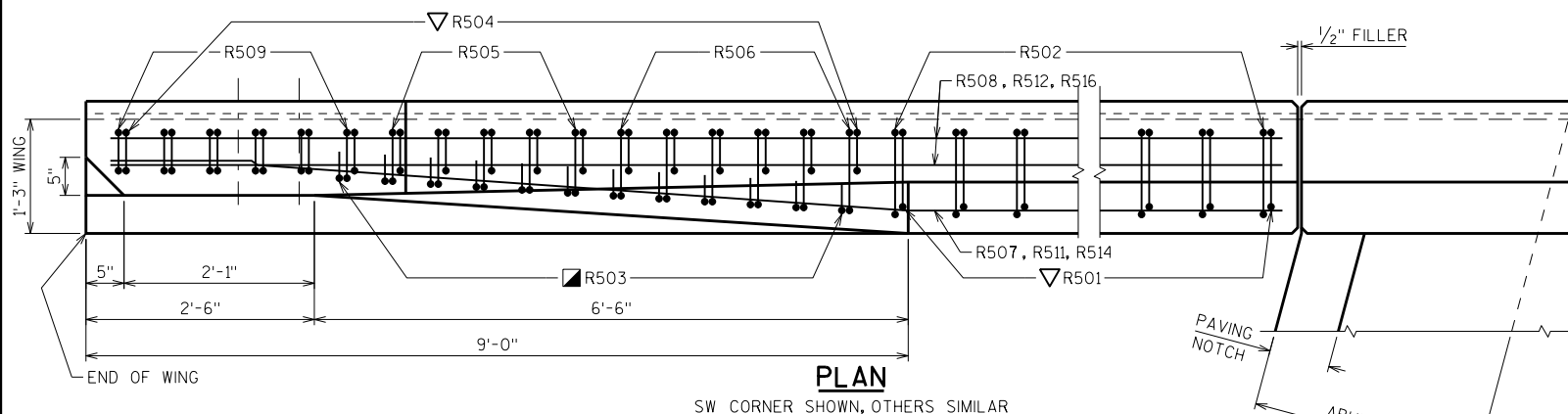
NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-465			
DRAWN BY		WWR	PLANS CKD. DLM
SUPERSTRUCTURE DETAILS 2		SHEET 22	

SCALE =



BILL OF BARS
FOR ABUTMENT PARAPETS

BAR MARK	COAT	S. ABUT.	N. ABUT.	LENGTH	BENT	BAR SERIES	LOCATION	NOTES:
R501	X	21	15	5'-10"	X		PARAPET VERT.	
R502	X	21	15	6'-8"	X		PARAPET VERT.	
R503	X	24	24	3'-0"	X		PARAPET VERT.	
R504	X	34	34	5'-7"	X		PARAPET VERT.	
R505	X	10	10	6'-5"	X		PARAPET VERT.	
R506	X	12	12	6'-6"	X		PARAPET VERT.	
R507	X	1	1	11'-7"	X		PARAPET HORIZ.	WING 2&3
R508	X	5	5	11'-7"	X		PARAPET HORIZ.	WING 2&3
R509	X	12	12	5'-5"	X	▲	PARAPET VERT.	
R510	X	4	4	11'-7"	X		PARAPET HORIZ.	WING 2&3
R511	X	1	—	17'-7"	X		PARAPET HORIZ.	WING 1
R512	X	5	—	17'-7"	X		PARAPET HORIZ.	WING 1
R513	X	2	—	17'-7"	X		PARAPET HORIZ.	WING 1
R514	X	—	1	13'-7"	X		PARAPET HORIZ.	WING 4
R515	X	—	2	13'-7"	X		PARAPET HORIZ.	WING 4
R516	X	—	5	13'-7"	X		PARAPET HORIZ.	WING 4



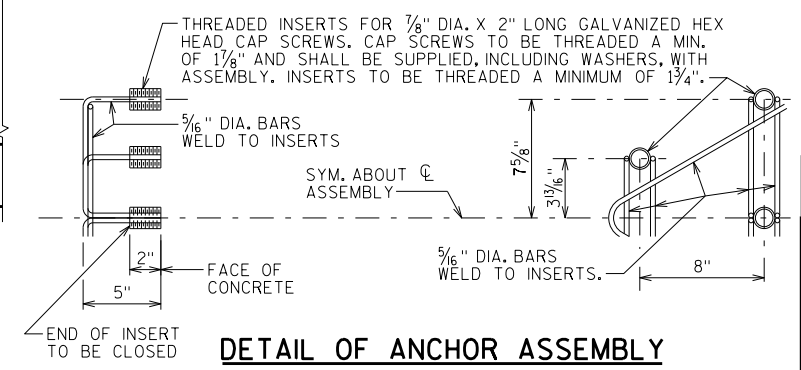
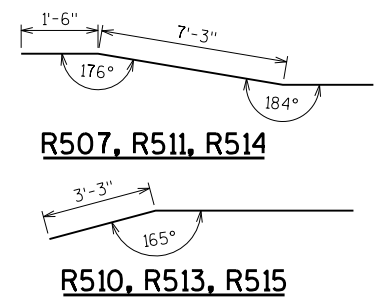
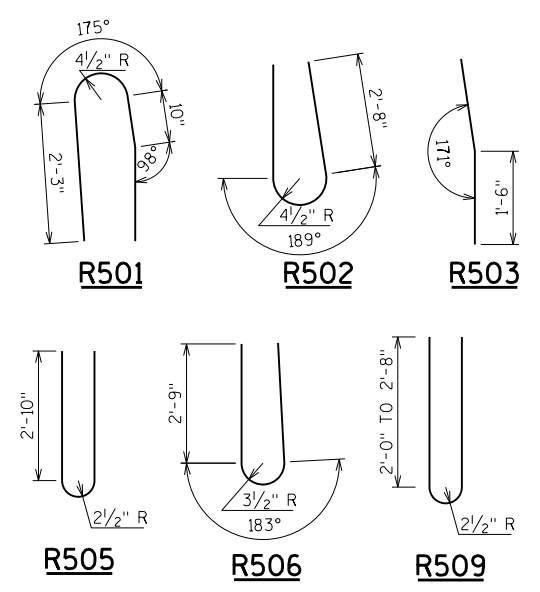
OPTIONAL CONSTRUCTION JOINTS IN THE PARAPETS MAY BE USED, RUN BAR REINF. THRU THE JOINT, LAP LONGIT. BARS A MIN. OF 1'-9". MIN. JOINT SPACING OF 80'-0". DEFINE CONST. JOINT WITH A 3/4" - 'V' GROOVE.

▲ LENGTH SHOWN FOR BAR IS AN AVERAGE LENGTH AND SHOULD ONLY BE USED FOR BAR WEIGHT CALCULATIONS. SEE BAR SERIES TABLE FOR ACTUAL LENGTHS.

BAR SERIES TABLE

BAR MARK	NO. REQ'D	LENGTH
R509	4 SERIES OF 6	4'-9" TO 6'-1"

BUNDLE AND TAG EACH SERIES SEPARATELY.



DETAIL OF ANCHOR ASSEMBLY

NOTE: HEX HEAD CAP SCREWS & WASHERS TO BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 CLASS C. ASSEMBLY SHALL BE BID ITEM "ANCHOR ASSEMBLIES FOR STEEL PLATE BEAM GUARD", EACH.

NO.	DATE	REVISION	BY

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION
STRUCTURES DESIGN SECTION

STRUCTURE B-5-465

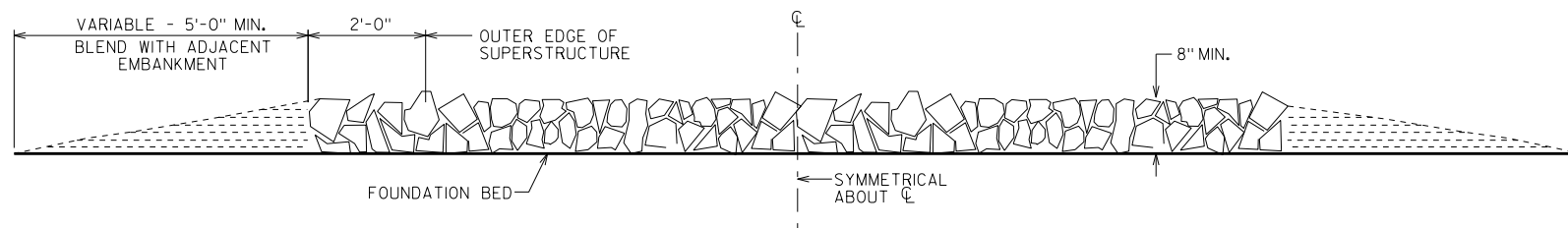
DRAWN BY: WWR PLANS CKD: DLM

SINGLE SLOPE PARAPET 42SS

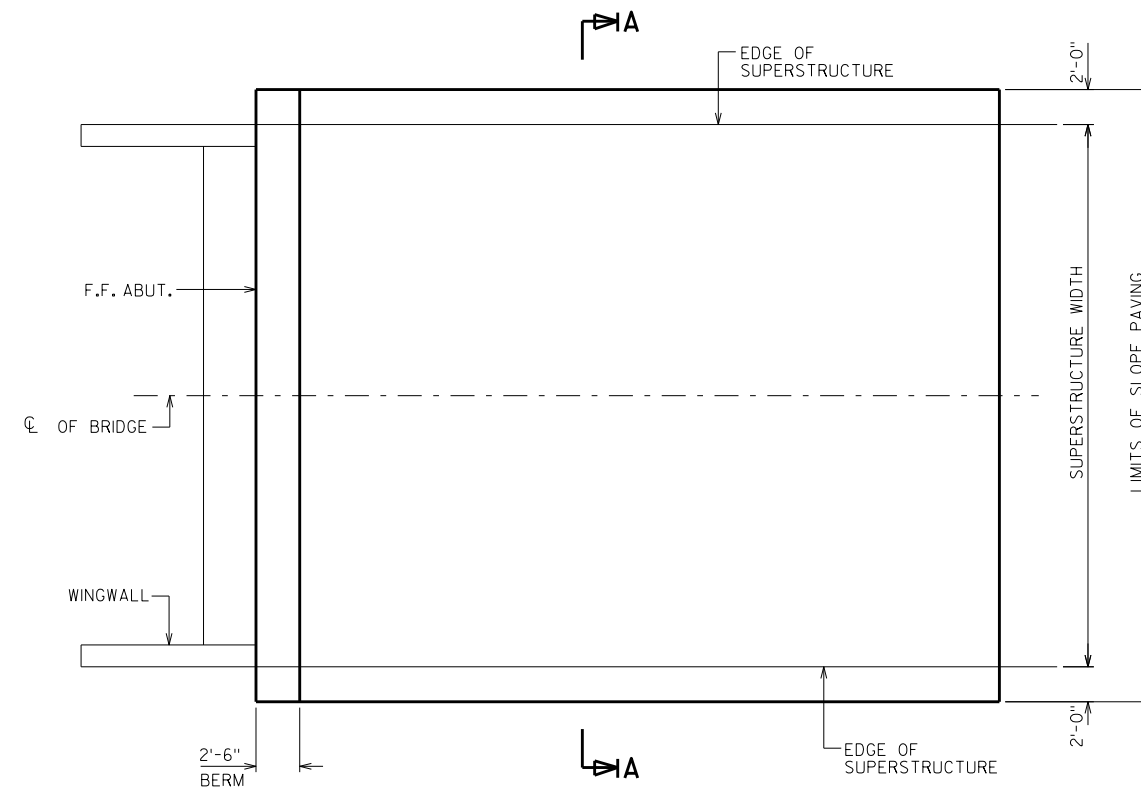
SHEET 23

8

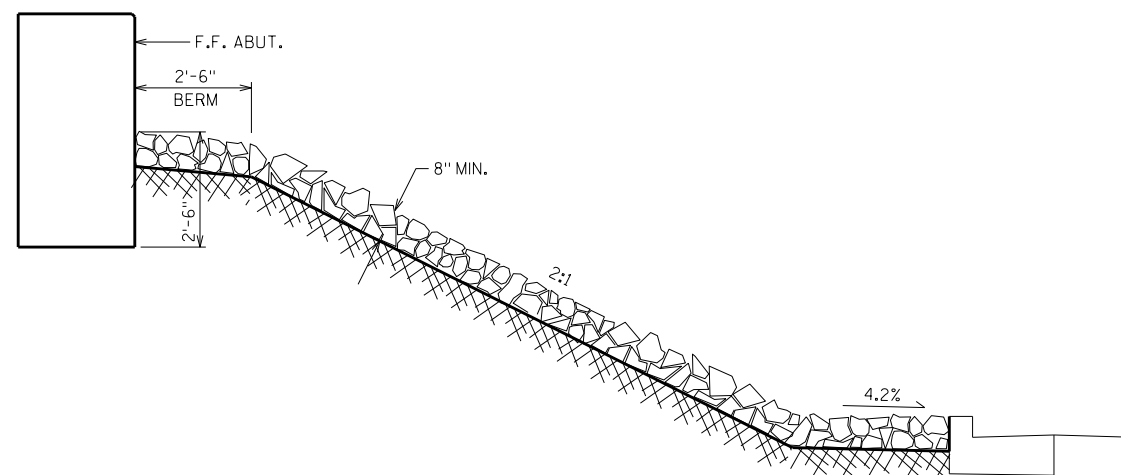
8



SECTION A-A



PLAN

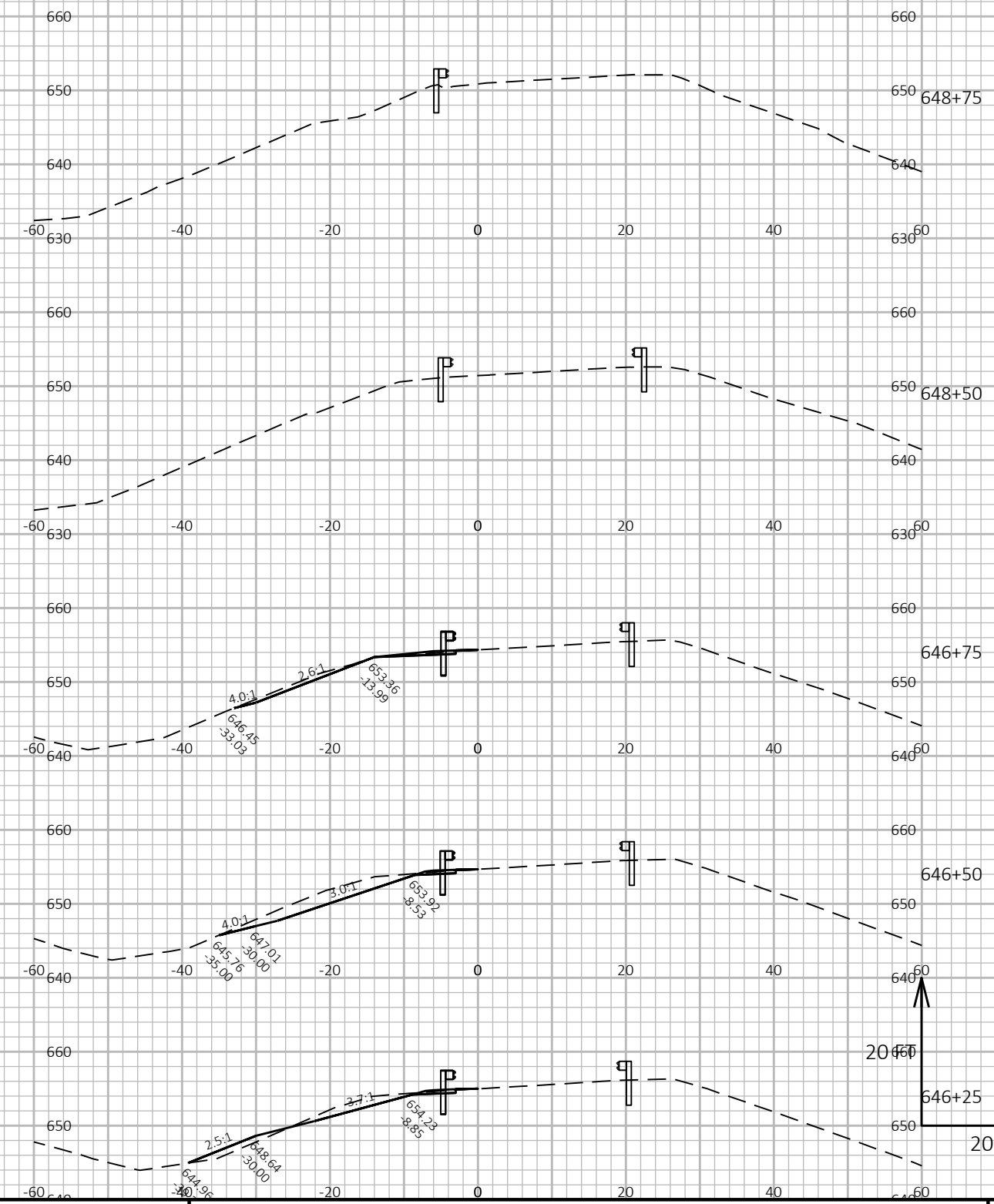
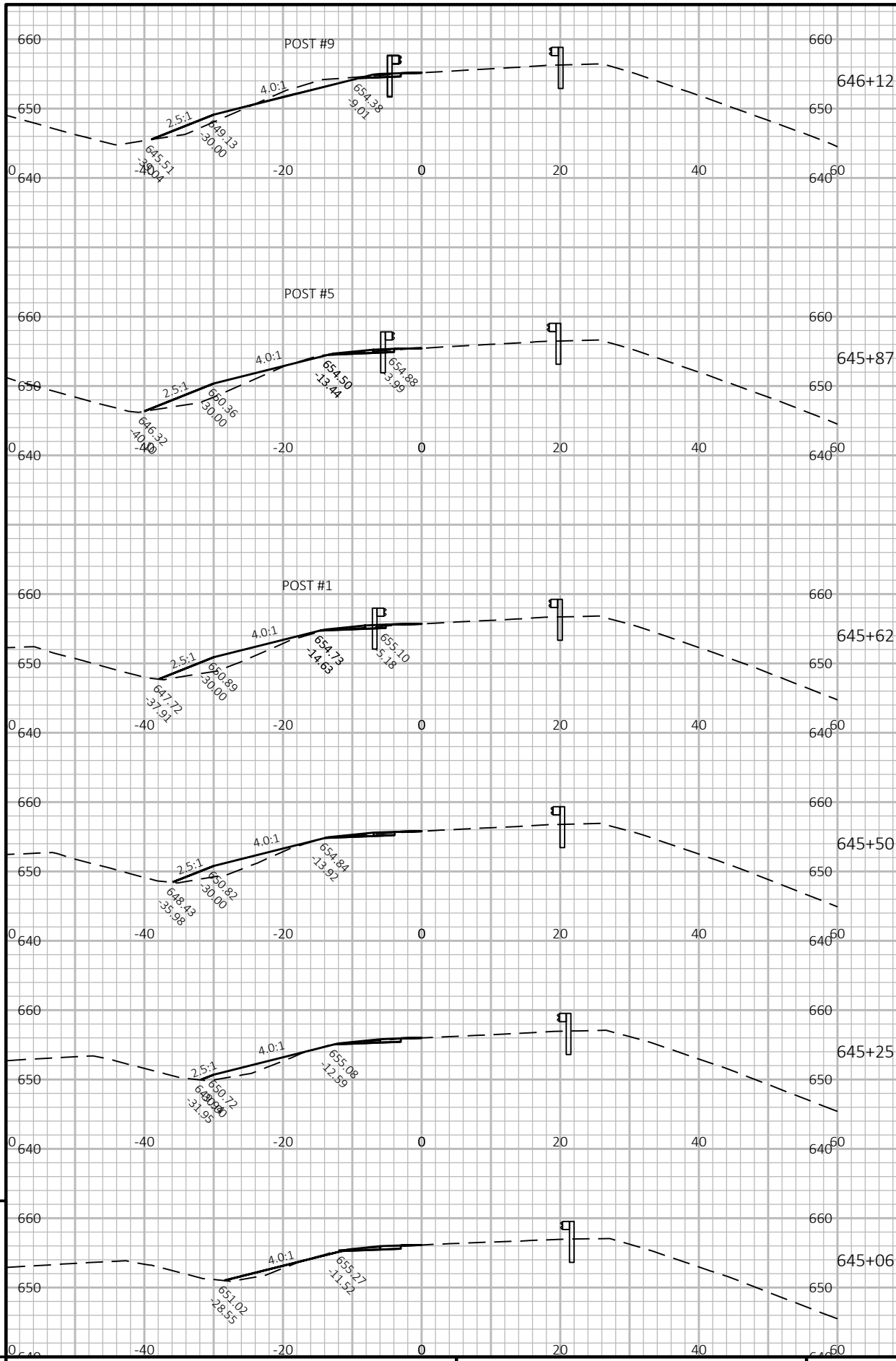


TYPICAL SECTION

NOTES

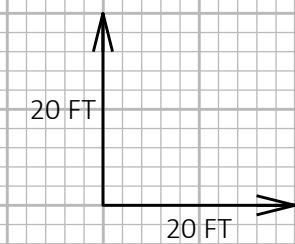
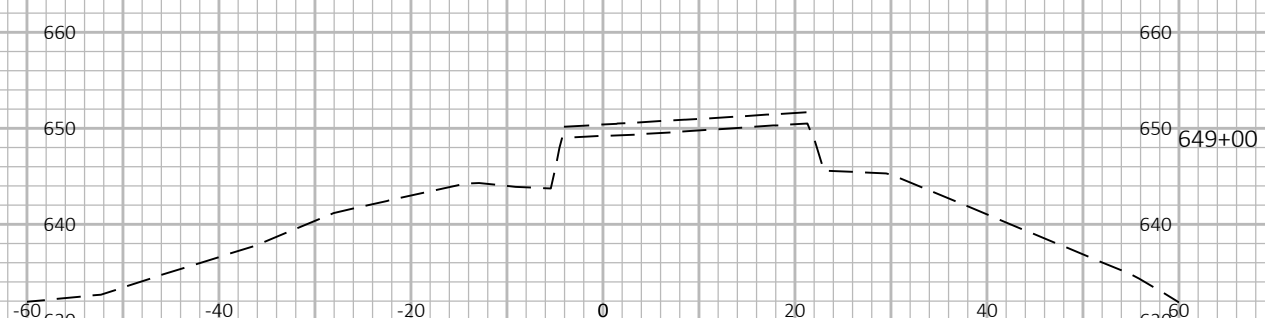
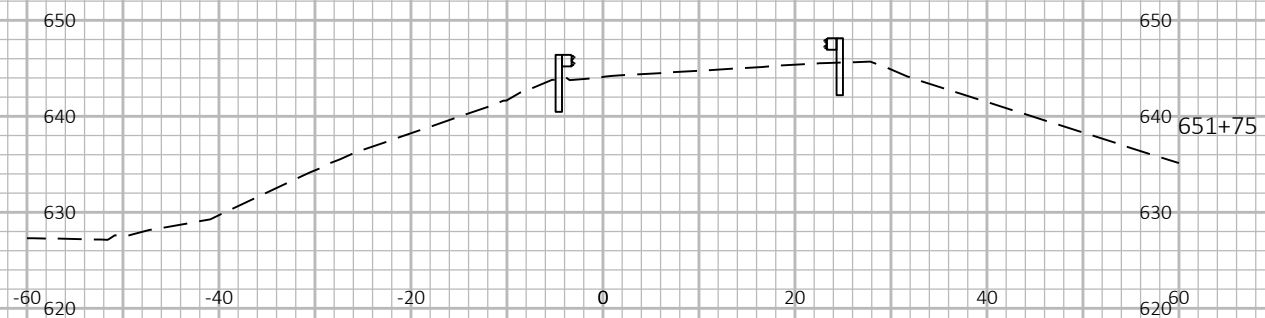
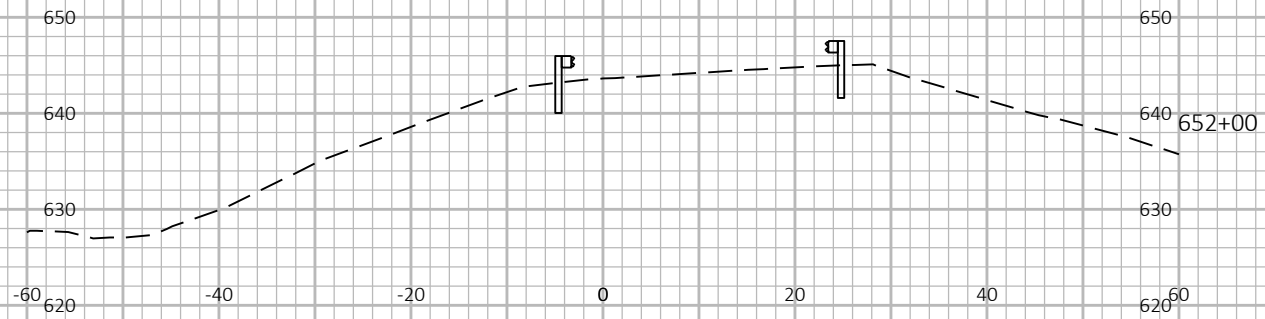
BID ITEM SHALL BE "SLOPE PAVING SELECT CRUSHED MATERIAL"
 WOOD FORMS MAY BE LEFT IN PLACE WHEN OF A QUALITY ACCEPTABLE TO THE ENGINEER.

NO.	DATE	REVISION	BY
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION STRUCTURES DESIGN SECTION			
STRUCTURE B-5-465			
DRAWN BY		WWR	PLANS CKD. DLM
SLOPE PAVING (SELECT CRUSHED MATERIAL)			SHEET 24



PROJECT NO: 4085-62-71 HWY: STH 32 COUNTY: BROWN CROSS SECTIONS: STH 32 NB SHEET 9

FILE NAME : N:\PDS\C3D\40856200\SHEETSPLAN\XS_60%.DWG PLOT DATE : 1/22/2020 3:03 PM PLOT BY : BRADLEY, KIMBERLY L PLOT NAME : PLOT SCALE : 1 IN:20 FT HORZ. / 1 IN:20 FT VERT. WISDOT/CADD SHEET 49



9

9

PROJECT NO: 4085-62-71

HWY: STH 32

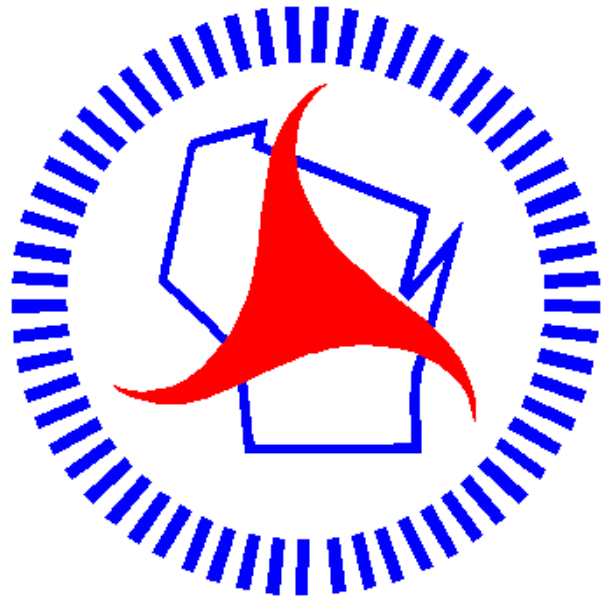
COUNTY: BROWN

CROSS SECTIONS: STH 32 NB

SHEET

E

Notes



Wisconsin Department of Transportation

Dedicated people creating transportation solutions through innovation and exceptional service.

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